NA-821 Series
SMB Network Appliance
User's Manual

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Safety Approvals

- CE Marking
- FCC Class B

FCC Compliance

This equipment has been tested and complies with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. If not installed and used in accordance with proper instructions, this equipment might generate or radiate radio frequency energy and cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measurers:
Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.
Shielded interface cables must be used in order to comply with emission limits.

Safety Precautions

Before getting started, read the following important cautions.

1. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
2. Disconnect the power cords from the **NA-821 Series** before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the **NA-821 Series** is properly grounded.
3. Do not open the system's top cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

   - Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.
   - When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

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Chapter 1
Introduction

This chapter contains general information and detailed specifications of the **NA-821 Series** Network Appliance Server. Chapter 1 contains the following sections:

- **General Description**
- **Features**
- **Specifications**
- **Dimensions**
- **I/O Outlets**
- **PCIe Module Configuration**

1.1 General Description

The **NA-821** is a 1U and rackmount network security hardware platform for VPN, firewall and other network security applications. It has extreme performance with Intel® Core™ 2 Duo processor with FSB (Front Side Bus) up to 1333 MHz. Regarding LAN ports, it supports the I/O module design mindset.

The **NA-821** possesses abundant connections for RJ-45 and fiber ports in different I/O modules. The customers can easily do the installations with these modules by their truly requirement accordingly. As for the memory, it supports 4GB DDR2 667/800 in maximum. In addition to the stable and high performance hardware platform design, the **NA-821** has optional enclosure management capability as AMT (Active Management Technology) to be implemented. The customers can perform the remote reset, remote boot and so on. Other features include LAN by-pass function controlled through WDT and GPIO pin definition for different LAN groups of I/O modules without any downtime, RAID function, SATA II hard drives supported. The **NA-821** doesn't only provide high performance for processor, memory, storage interface and LAN ports connection, but also includes outstanding management capability.

1.2 Features

- Extreme performance Intel® Core™2 Duo, Core™ 2 Quad processor, up to FSB 1333 MHz
- Supports Multiple PCIe I/O slots for LAN modules expansion
- Supports Intel® AMT (Active Management Technology) for remote management
- Supports two S-ATA 2.5" HDD and RAID feature for event log or proxy data (Optional)
- Smart fan and intrusion control for case open (Optional)
- Suitable for network appliance; VPN, network bandwidth controller, firewall and UTM

1.3 Specifications

1.3.1 System

- **System CPU**
  - Intel® Core™ 2 Duo,/Core™ 2 Quad processor with FSB 800/ 1066/ 1333 MHz
- **System Chipset**
  - Intel® Q35 + ICH9DO
- **BIOS**
  - Award 32 Mbit PnP Flash BIOS (SPI) with function of BIOS redirected to COM port
- **System Memory**
  - Up to 4GB for DDR2 667/800
- **S-ATA II Interface**
  - Two SATA II channels
- **Network Interface**
  - The default is four 10/100/1000Mbps PCI Gigabit LAN ports and two LAN bypass segments
  - More LAN ports expandibility of the device by LAN modules as AX93125, AX93126, AX93127 and AX93128
  - Up to 11 LAN ports in total (maximum)

- **SSD**
  - Supports CompactFlash™
- **Watchdog Timer**
  - 255 stepping for porting
- **Expansion slot**
  - One PCI slot with 32-bit/ 33 MHz by AX90621 riser card
  - One PCI-X slot for 64-bit/133MHz by AX90621 riser card (Optional)
- **USB**
  - Two USB ports in the front, others are pin header internally
- **Other Features**
  - Reset and power on/off function onboard (Pin) (optional)
  - AMT (Active Management Technology) function support
  - Supports SPI Flash
  - Supports firmware upgrade functions by SMBus EEPOM (optional)
- **LCD Module**
  - Yes. Programmable through RS-232 interface 4 hard keys on the front panel for users operation
- **Power**
  - 270W ATX power supply
- **Enclosure**
  - Smart fan control (To manage the fan Management speed and fan failure alert), intrusion control for case open (Optional)
- **OS Compatibility**
  - Redhat Linux 2.4 and 2.6 Kernel

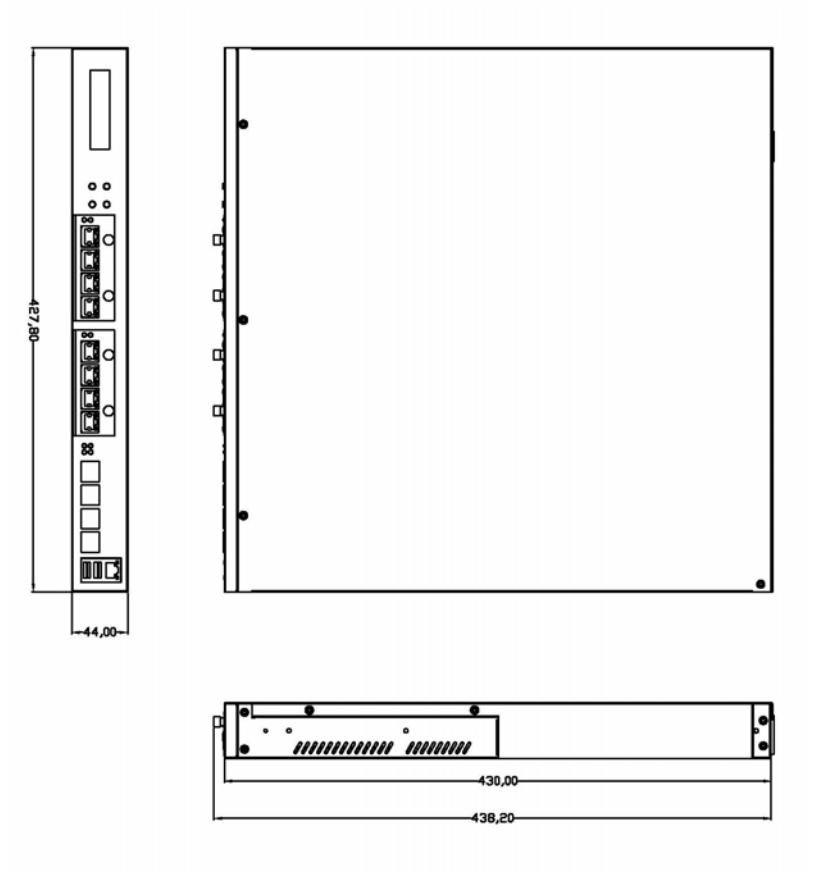
1.3.2 Mechanical / Environmental

- **Form Factor**
  - 1U rackmount
- **LED**
  - Power, HDD, Link/Act with transfer rate
- **Operation Temp.**
  - 0°C ~ 40°C
- **Storage Temp.**
  - -20°C ~ 70°C (14 ~ 158°F)
- **Humidity**
  - 5% - 95% RH, non-condensing
- **Chassis Material**
  - Steel
- **Dimensions**
  - 44 mm (1.73") (H) x 427.8 mm (16.83") (W) x 430 mm (16.93") (D)
- **Certification**
  - FCC / CE pre-scan

NOTE *All specifications and images are subject to change without notice.*

1.4 Dimensions and Outlines

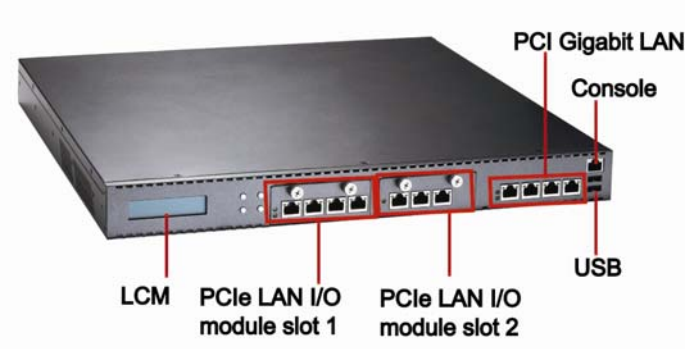
The following diagrams show you dimensions and outlines of the **NA-821 Series**.



1.5 I/O Outlets

Locate front and rear panel I/O outlets on the **NA-821 Series** server to connect serial and Ethernet interface devices.

1.5.1 Front Panel



- **Console port**
  It is a RJ RS-232 Console port for command line interface and diagnostic support by P.O.S.T (Power On Self Test). In AMT system did not support RS-232 console.
- **USB Port**
  Any special functions must be defined by solution provider.
- **PCI Gigabit LAN**
  It will be lighting when a twisted pair is connected to another Gigabit device on the port.
- **PCIe LAN I/O module slot 2 (Optional)**
  It will be lighting when a twisted pair is connected to another Gigabit device on the port.
- **PCIe LAN I/O module slot 1 (Optional)**
  It will be lighting when a twisted pair is connected to another Gigabit device on the port.
- **Transfer Rate**
  It shows network transfer rate while making a connection.

- **Activity**
  It will be lighting when the server is transmitting or receiving a packet through the twisted pair ports.

- **Transmitted LED (Dual color) for LAN port #1, port#2, port#3, port#4, port #5, port#6, port#7, port#8 port#9, port#10, port#11 (Optional)**
  1. The orange-color LED light indicates 10/100/1000Mbps transfer rate
  2. The green-color LED light indicates 10/100Mbps transfer rate.
  3. The LED will be dark when the Link/Active LED is lighting or flashing; it indicates 10Mbps transfer rate.
  4. The LED will be dark when the Link/Active LED is dark, too. No networking devices are attached.

1.5.2 Rear Panel

1.6 PCIe Module Configuration

1.6.1 Configuration I

PCIe x 1 Gigabit module with up to 4 LAN ports and PCIe x 1 Gigabit module with up to 2 LAN ports, two LAN bypass segments.

	AX93125	AX93127
PCIe x1 Gigabit	4	2
Ethernet Controller	Intel® 82573	Intel® 82573, 82566DM
Interface Type	RJ-45	RJ-45
Bypass Segment	2	N/A
Slot Location	Slot 1	Slot 2
PCI-X Slot (Optional)	Yes, PCI-X 64-bit/133 MHz	

1.6.2 Configuration II

PCIe x4 Gigabit module with up to 2 SFP LAN ports and PCIe x1 Gigabit module with up to 2 LAN ports.

	AX93126	AX93127
PCIe x4 Gigabit	2	0
PCIe x1 Gigabit	0	2
Ethernet Controller	Intel® 82571	Intel® 82573, 82566DM
Interface Type	SFP	RJ-45
Bypass Segment	N/A	N/A
Slot Location	Slot 1	Slot 2
PCI-X Slot (Optional)	Yes, PCI-X 64-bit/133 MHz	

1.6.3 Configuration III

PCIe x1 Gigabit module with up to 4 LAN ports and PCIe x1 Gigabit module with up to 3 LAN ports, two LAN bypass segments.

	AX93125	**AX93128**
PCIe x4 Gigabit	4	0
PCIe x1 Gigabit	0	3
Ethernet Controller	Intel® 82573	Intel® 82573, 82566DM
Interface Type	RJ-45	RJ-45
Bypass Segment	2	N/A
Slot Location	Slot 1	Slot 2
PCI-X Slot (Optional)	N/A	

1.6.4 Configuration IV

PCIe x4 Gigabit module with up to 2 SFP LAN ports and PCIe x1 Gigabit module with up to 3 LAN ports.

	AX93126	**AX93128**
PCIe x4 Gigabit	2	0
PCIe x1 Gigabit	0	3
Ethernet Controller	Intel® 82571	Intel® 82573, 82566DM
Interface Type	SFP	RJ-45
Bypass Segment	N/A	N/A
Slot Location	Slot 1	Slot 2
PCI-X Slot (Optional)	N/A	

MEMO

Chapter 2
Hardware and Installation

The **NA-821 Series** are convenient for your various hardware configurations. The chapter 2 will help you get familiar with the hardware.

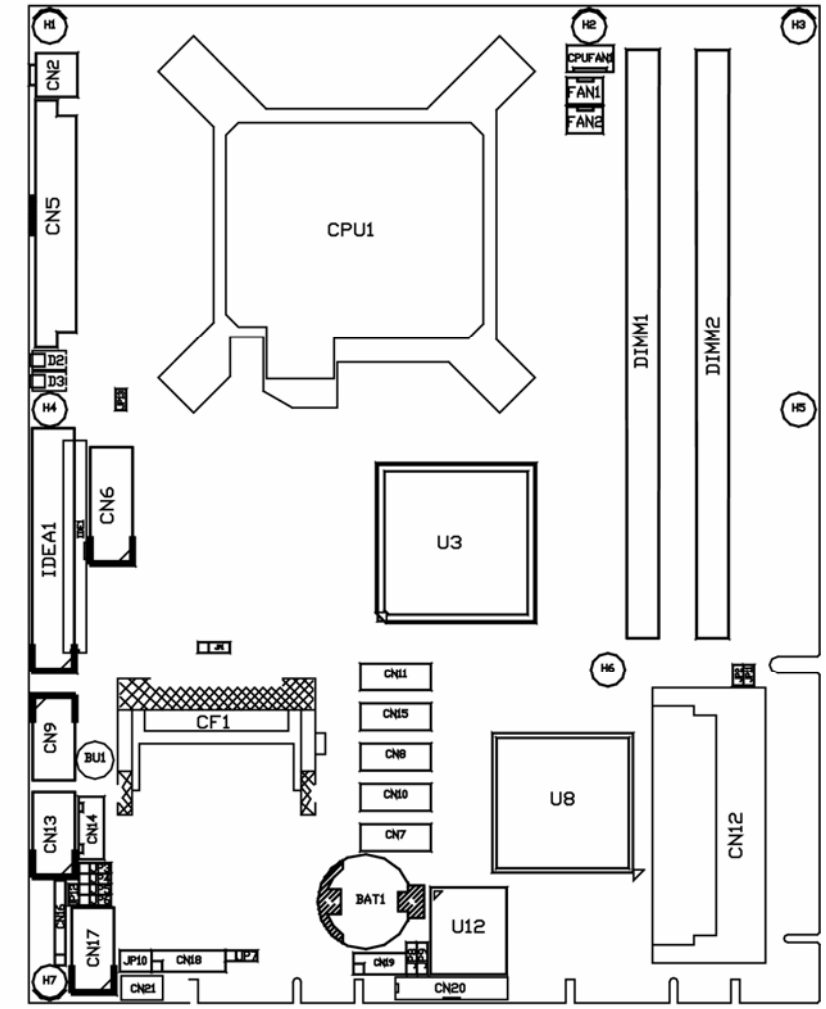
2.1 Checklist

The package bundled with your **NA-821 Series** should contain the following items:

- The **NA-821 Series** network appliance hardware platform
- Power cord x 1
- Utility CD (including this User's Manual)
- Mounting brackets for rack installation (left/right) x 2
- Plastic stand for stack–up x 4
- Mounting screws for disk drive and additional screws for this appliance's spareparts
- Optional cable kits (1 x RJ console cable, 1 x PS/2 keyboard and mouse cable, 1 x VGA cable)

If you can not find this package or any items are missing, please contact AXIOMTEK distributors immediately. If you order any optional components, the package might contain those additional hardware or documents accordingly.

2.2 Board Layout



2.3 Jumper Settings

This section provides the information about jumpers and connectors of **NA-821 Series**. Proper jumer settings configure the main board in this applicance to meet your application purpose. We are herewith listing a summary table of all jumpers and default settings for onboard devices, respectively.

Jumper	Default Setting	Jumper Setting
JP1	CF Power	Short 1-2 for 3.3V (Default) Short 2-3 for 5V
JP7	WDT	Short 1-2 for SYS Reset Short 2-3 for LAN by-pass (Default)
JP8	ME Clear Jumper	Short 1-2 for Normal (Default) Short 2-3 for ME Clear
JP9	Clear CMOS Jumper	Short 1-2 for Normal (Default) Short 2-3 for BIOS Clear CMOS
JP12	Auto Power On	Short for Auto Power On (Default) Open for Non-Auto Power On

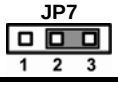
2.3.1 CompactFlash™ Power Jumper (JP1)

This jumper is to select the power for CompactFlash™ interface.

Description	Function	Jumper Setting
CF Power	3.3V (Default)	
	5V	

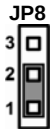
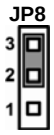
2.3.2 WDT Jumper (JP7)

You may need to use this jumper to set WDT output function for SYS Reset or LAN bypass.

Description	Function	Jumper Setting
WDT	WDT SYS Reset	
	WDT LAN Bypass (Default)	

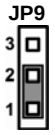
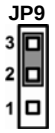
2.3.3 ME Clear CMOS Jumper (JP8)

You may need to use this jumper to clear the ME CMOS memory if incorrect settings in the Setup Utility.

Description	Function	Jumper Setting
ME Clear CMOS	Normal (Default)	
	ME Clear CMOS	

2.3.4 BIOS Clear CMOS Jumper (JP9)

You may need to use this jumper is to clear the BIOS CMOS memory if incorrect settings in the Setup Utility.

Description	Function	Jumper Setting
BIOS Clear CMOS	Normal (Default)	
	BIOS Clear CMOS	

2.3.5 Auto Power On Jumper (JP12)

Do not remove this jumper. If you remove this jumper, NA-821 must use power button to be Power On.

Description	Function	Jumper Setting
Auto Power On	Short for Auto Power On (Default)	
	Open for Non-Auto Power On	

2.4 Connectors

Connectors connect the board with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly and firmly connected. Here is a summary table shows you all connectors on the main board.

Connector	Label	Connector	Label
Front Panel Connector	CN18	CompactFlash™ Connector	CF1
COM2 Connector	CN13	S-ATA Port 1 Connector	CN11
LCM Connector	CN14	S-ATA Port 2 Connector	CN15
USB Port 3, 4 Connector	CN9	S-ATA Port 3 Connector	CN8
CRT Connector	CN6	S-ATA Port 4 Connector	CN10
Keyboard/Mouse Connector	CN17	S-ATA Port 5 Connector	CN7
ATX Power Connector	CN5	SYSTEM FAN1 Connector	FAN1
ATX12V CPU Power Connector	CN2	SYSTEM FAN2 Connector	FAN2
System BIOS	U12	Internal Buzzer	BU1
Mini-PCI Connetcor	CN12	Internal Battery	BAT1
LED Connetcor	D2	LGA775 CPU Socket	CPU1

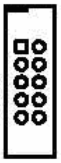
Connector	Label	Connector	Label
LED Connetcor	D3	240-Pin DDR2 Memory Channel-A	DIMM1
Extension USB Port & Console Port	CN20	240-Pin DDR2 Memory Channel-B	DIMM2
Case Open	JP11		

2.4.1 Keyboard & PS/2 Mouse Connector (CN17)

The board supports a keyboard and Mouse interface. Connector CN17 is a DIN connector for PS/2 keyboard Connection VIA "Y" Cable.

Pin	Signal	Pin	Signal
1	VCC	2	KBDATA
3	KBCLK	4	GND
5	VCC	6	VCC
7	MSDATA	8	MSCLK
9	GND	10	NC

CN17

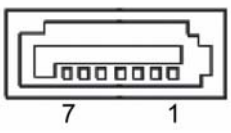


2.4.2 SATA Port 1 ~ 5 Connectors (CN11, CN15, CN8, CN10, CN7)

These SATA connectors are for high-speed SATA interface ports and they can be connected to serial ATA hard disk devices.

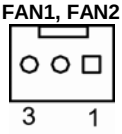
Pin	Signal	Pin	Signal
1	GND	2	TX+
3	TX-	4	GND
5	RX-	6	RX+
7	GND		

CN11, CN15, CN8, CN10, CN7



2.4.3 SYSTEM FAN1 ~ 2 Connectors (FAN1, FAN2)

You can connect the system cooling fan cable to **FAN1/FAN2** for system cooling fan power.

Pin	Signal	FAN1, FAN2
1	Ground	
2	+12V	
3	Rotation Detection	

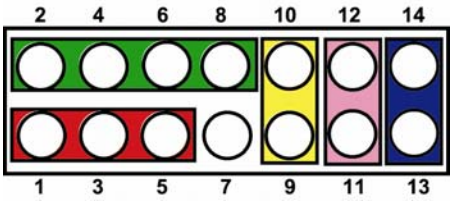
2.4.4 CompactFlash™ Connector (CF1)

The board is equipped with a CompactFlash™ disk type-II socket on the solder side to support an IDE interface CompactFlash™ disk card with DMA mode supported. The socket is especially designed to avoid incorrect installation of the CompactFlash™ disk card. When installing or removing the CompactFlash™ disk card, please make sure the system power is off.

Pin	Signal	Pin	Signal
1	GND	2	Data 3
3	Data 4	4	Data 5
5	Data 6	6	Data 7
7	CS1#	8	GND
9	GND	10	GND
11	GND	12	GND
13	VCC	14	GND
15	GND	16	GND
17	GND	18	Address 2
19	Address 1	20	Address 0
21	Data 0	22	Data 1
23	Data 2	24	NC
25	GND	26	GND
27	Data 11	28	Data 12
29	Data 13	30	Data 14
31	Data 15	32	CS3#

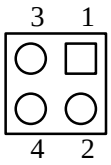
Pin	Signal	Pin	Signal
33	GND	34	IORD#
35	IOWR#	36	VCC
37	INTR	38	VCC
39	CSEL#	40	GND
41	RESET#	42	IORDY#
43	DMAREQ	44	DMAACK-
45	LED#	46	PATADET
47	Data 8	48	Data 9
49	Data 10	50	GND

2.4.5 Front Panel Connector (CN18)



- **Power LED**
  Pin 1, 3, 5 and **7** connect the system power LED indicator to its respective switch on the case. Pin 1 is +, and pin 5 is assigned as -. Pin 7 is defined as NC
- **External Speaker and Internal Buzzer Connector**
  Pin 2, 4, 6 and **8** connect to the case-mounted speaker unit or internal buzzer.
- **Hardware Reset**
  Pin 11 and **12** are designed for Hardware Reset.
- **HDD Activity LED**
  This connector extends to the hard drive activity LED on the control panel. This LED will flash when the HDD is being accessed. **Pin 13** and **14** connect the hard disk drive and the front panel HDD LED.
- **Power Button**
  This 2-pin connector was designed at **Pin 9** and **10**.

2.4.6 LED Connectors (D2, D3)



■ **D2 Connector**

Pin	Signal
1-2	HDD LED (Pin 1 +, Pin 2 -)
3-4	Reserved

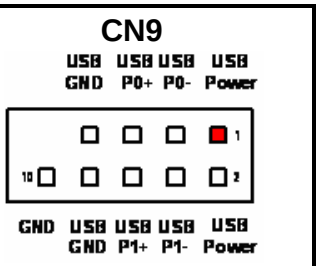
■ **D3 Connector**

Pin	Signal
1-2	Power LED (Pin 1 +, Pin 2 -)
3-4	Reserved

2.4.7 USB Port Connector (CN9) – USB 2x5 Box Header

The Universal Serial Bus (USB) port connector on the board is for the installation of peripherals supporting the USB interface. **CN9** consists of two 4-pin standard USB ports.

Pin	Signal	Pin	Signal
1	USB POWER	2	USB POWER
3	USB P0-	4	USB P1-
5	USB P0+	6	USB P1+
7	USB GND	8	USB GND
9	NC	10	GND



2.4.8 Case Open Connector (JP11) – 2 Pin Header

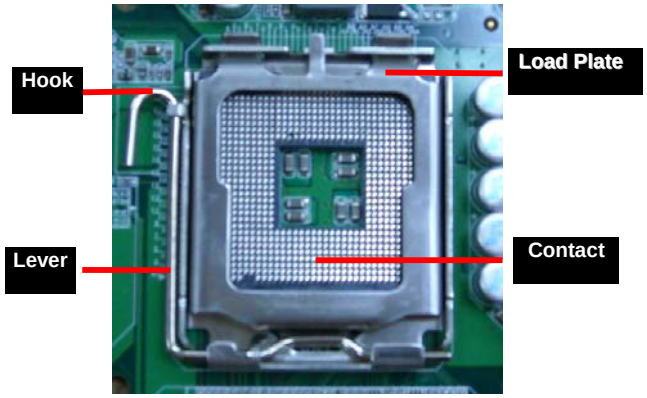
The case open connector on the board is for the case open detector. The function enable is by software AP.

2.5 Hardware Installation

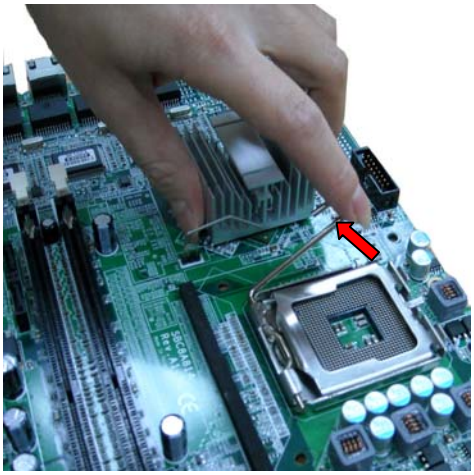
This section provides you the information how to install the **NA-821 Series**.

2.5.1 Installing the CPU

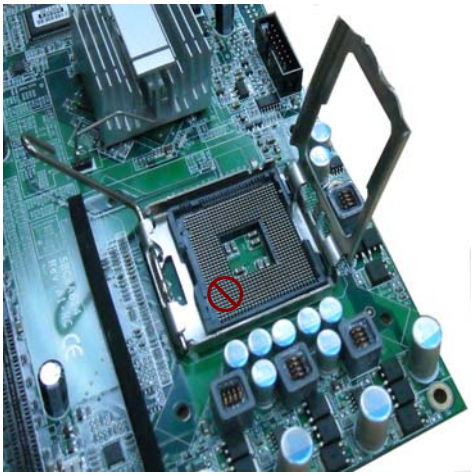
1. Get familiar with the LGA775 socket.



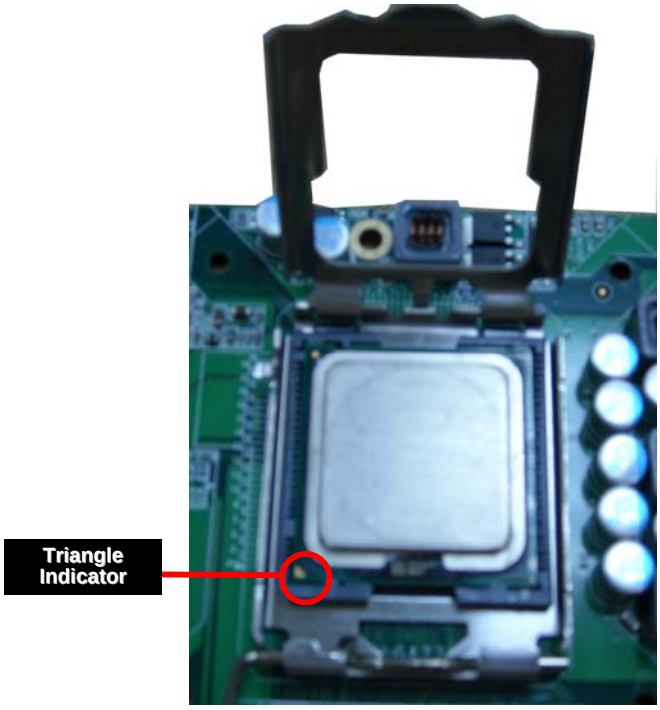
2. Hold and push down the hook of the lever, and pull the lever aside to unlock the cover.



3. Open the load plate, you can see the contact. Be careful not to touch the contact.



4. Place the CPU down into the socket. Be careful not to touch the contact. Hold the edges of the CPU, orientate it as the triangle indicator on the bottom-left corner the socket, and insert it into the socket.



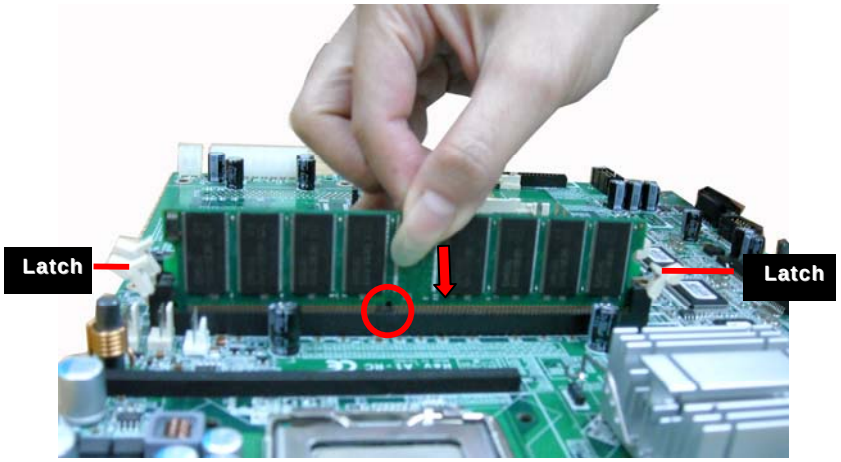
5. Slightly push down and close the load plate. While pressing down lightly on load plate, engage the lever. Secure lever with load plate tab under retention tab of the lever. The CPU is completely locked.

2.5.2 Installing the Memory Module

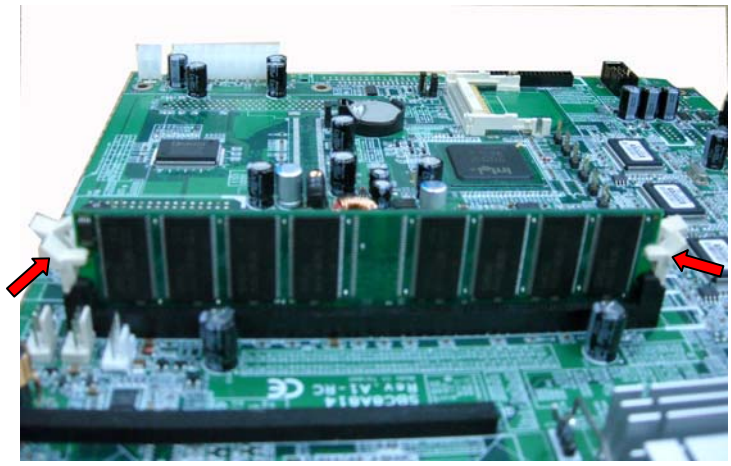
The main board supports two 240-pin DDR2 DIMM socket with maximum memory capacity up to 4GB None-ECC unbuffer memory.

The following steps show you how to install the memory modules:

1. Push down each side of the DIMM socket. Align the memory module with the socket that notches of memory module must match the socket keys for a correct installation.



2. Insert the memory module into the socket and push it firmly down until it is fully seated. The socket latches are levered upwards and clipped on to the edges of the DIMM.



3. Install any remaining DIMM modules.

4. If the user use AMT function, must put the memory module into DIMM 1.

Notice 1 *When you are handling electrostatic discharge-sensitive (ESDs), please take precautions to avoid any damage from static electricity.*

Notice 2 *The memory can support DDR2 667/800.*

Chapter 3
Phoenix-Award BIOS Utility

The Phoenix-Award BIOS provides users with a built-in Setup program to modify basic system configuration. All configured parameters are stored in a battery-backed-up RAM (CMOS RAM) to save the Setup information whenever the power is turned off.

3.1 Entering Setup

There are two ways to enter the Setup program. You may either turn ON the computer and press <Del> immediately, or press the <Del> and/or <Ctrl>, <Alt>, and <Esc> keys simultaneously when the following message appears at the bottom of the screen during POST (Power on Self Test).

TO ENTER SETUP PRESS DEL KEY

If the message disappears before you respond and you still want to enter Setup, please restart the system to try it again. Turning the system power OFF and ON, pressing the "RESET" button on the system case or simultaneously pressing <Ctrl>, <Alt>, and <Del> keys can restart the system. If you do not press keys at the right time and the system doesn't boot, an error message will pop out to prompt you the following information:

PRESS <F1> TO CONTINUE, <CTRL-ALT-ESC> OR <DEL> TO ENTER SETUP

3.2 Control Keys

Up arrow	Move cursor to the previous item
Down arrow	Move cursor to the next item
Left arrow	Move cursor to the item on the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and delete changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp/"+" key	Increase the numeric value or make changes
PgDn/"–" key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift) F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Reserved
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the Setup default, only for Option Page Setup Menu
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

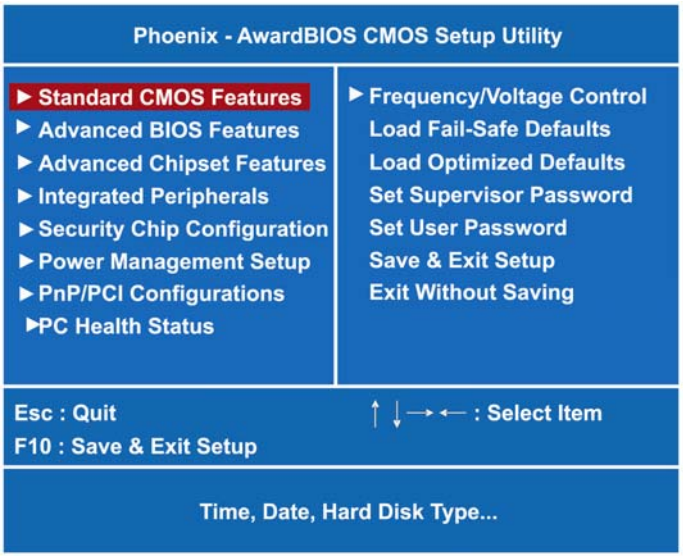
3.3 Getting Help

- **Main Menu**
  The online description of the highlighted setup function is displayed at the bottom of the screen.

- **Status Page Setup Menu/Option Page Setup Menu**
  Press <F1> to pop out a small Help window that provides the description of using appropriate keys and possible selections for highlighted items. Press <F1> or <Esc> to exit the Help Window.

3.4 The Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu appears on the screen. In the Main Menu, there are several Setup functions and a couple of Exit options for your selection. Use arrow keys to select the Setup Page you intend to configure then press <Enter> to accept or enter its sub-menu.

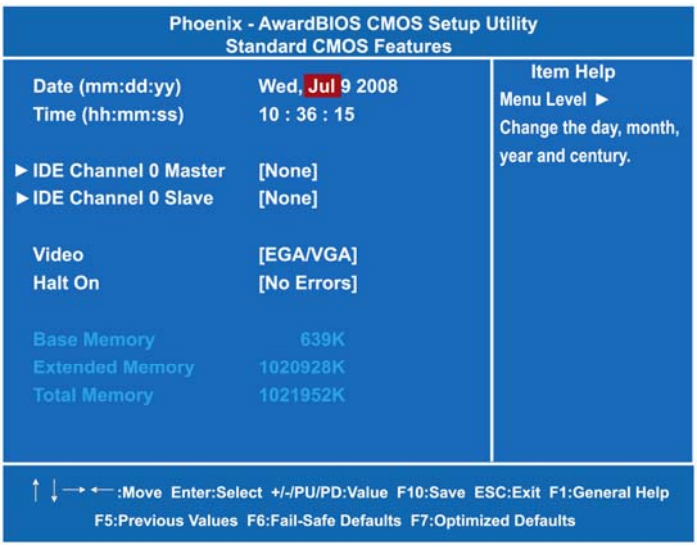


NOTE *If your computer can not boot after making and saving system changes with Setup, the Award BIOS will reset your system to the CMOS default settings via its built-in override feature.*

It is strongly recommended that you should avoid changing the chipset's defaults. Both Award and your system manufacturer have carefully set up these defaults that provide the best performance and reliability.

3.5 Standard CMOS Setup Menu

The Standard CMOS Setup Menu displays basic information about your system. Use arrow keys to highlight each item, and use <PgUp> or <PgDn> key to select the value you want in each item.


Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features
Item Help
Date (mm:dd:yy) Wed, Jul 9 2008
Time (hh:mm:ss) 10 : 36 : 15
Menu Level ►
Change the day, month, year and century.
► IDE Channel 0 Master [None]
► IDE Channel 0 Slave [None]
Video [EGA/VGA]
Halt On [No Errors]
Base Memory 639K
Extended Memory 1020928K
Total Memory 1021952K
↑ ↓ → ← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **Date**
  The date format is <day>, <date> <month> <year>. Press <F3> to show the calendar.

day	It is determined by the BIOS and read only, from Sunday to Saturday.
date	It can be keyed with the numerical/ function key, from 1 to 31.
month	It is from January to December.
year	It shows the current year of BIOS.

- **Time**
  This item shows current time of your system with the format <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

- **IDE Primary Master/Primary Slave**
  These items identify the types of each IDE channel installed in the computer. There are 45 predefined types (Type 1 to Type 45) and 2 user's definable types (Type User) for Enhanced IDE BIOS. Press <PgUp>/<+> or <PgDn>/<–> to select a numbered hard disk type, or directly type the number and press <Enter>. Please be noted your drive's specifications must match the drive table. The hard disk will not work properly if you enter improper information. If your hard disk drive type does not match or is not listed, you can use Type User to manually define your own drive type.
  If selecting Type User, you will be asked to enter related information in the following items. Directly key in the information and press <Enter>. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.
  If the HDD interface controller supports ESDI, select "Type 1".
  If the HDD interface controller supports SCSI, select "None".
  If the HDD interface controller supports CD-ROM, select "None".

CYLS.	number of cylinders	**LANDZONE**	landing zone
HEADS	number of heads	**SECTORS**	number of sectors
PRECOMP	write precom	**MODE**	HDD access mode

  If there is no hard disk drive installed, select NONE and press <Enter>.

- **Video**
  Select the display adapter type for your system.

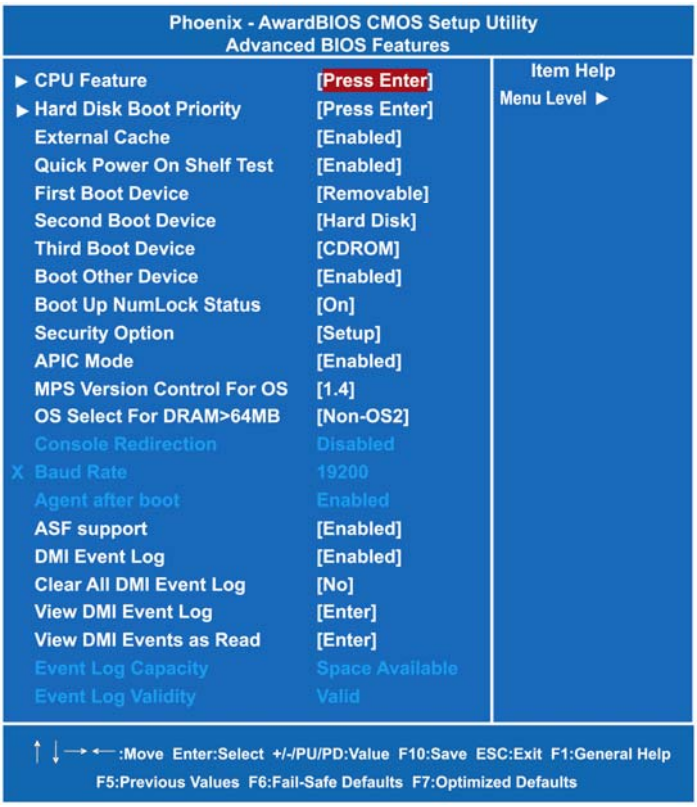
- **Halt On**
  This item determines whether the system will halt or not, if an error is detected while powering up.

No errors	The system booting will halt on any errors detected. (default)
All errors	Whenever BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system booting will not stop for a keyboard error; it will stop for other errors.
All, But Diskette	The system booting will not stop for a disk error; it will stop for other errors.
All, But Disk/Key	The system booting will not stop for a keyboard or disk error; it will stop for other errors.

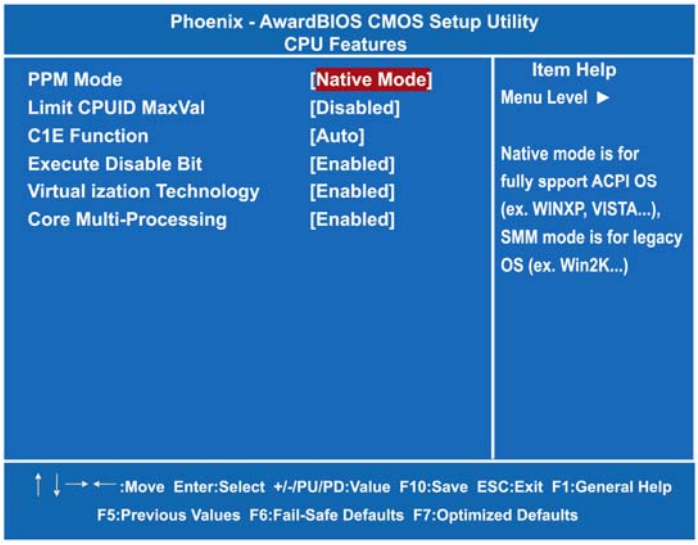
Press <Esc> to return to the Main Menu page.

3.6 Advanced BIOS Features

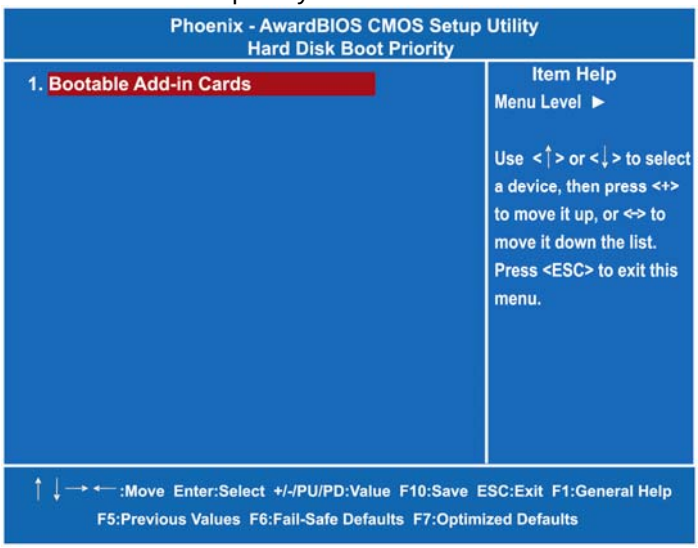
This section allows you to configure and improve your system, to set up some system features according to your preference.


Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features
Item Help
Menu Level ►
▶ CPU Feature [Press Enter]
▶ Hard Disk Boot Priority [Press Enter]
External Cache [Enabled]
Quick Power On Shelf Test [Enabled]
First Boot Device [Removable]
Second Boot Device [Hard Disk]
Third Boot Device [CDROM]
Boot Other Device [Enabled]
Boot Up NumLock Status [On]
Security Option [Setup]
APIC Mode [Enabled]
MPS Version Control For OS [1.4]
OS Select For DRAM>64MB [Non-OS2]
Console Redirection Disabled
X Baud Rate 19200
Agent after boot Enabled
ASF support [Enabled]
DMI Event Log [Enabled]
Clear All DMI Event Log [No]
View DMI Event Log [Enter]
View DMI Events as Read [Enter]
Event Log Capacity Space Available
Event Log Validity Valid
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **CPU Feature**
  Scroll to this item and press <Enter> to view the CPU Feature sub menu.


Phoenix - AwardBIOS CMOS Setup Utility
CPU Features
PPM Mode [Native Mode]
Limit CPUID MaxVal [Disabled]
C1E Function [Auto]
Execute Disable Bit [Enabled]
Virtual ization Technology [Enabled]
Core Multi-Processing [Enabled]
Item Help
Menu Level ►
Native mode is for fully spport ACPI OS (ex. WINXP, VISTA...), SMM mode is for legacy OS (ex. Win2K...)
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **Hard Disk Boot Priority**
  Scroll to this item and press <Enter> to view the sub menu to decide the disk boot priority.


Phoenix - AwardBIOS CMOS Setup Utility
Hard Disk Boot Priority
1. Bootable Add-in Cards
Item Help
Menu Level ►
Use <↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **External Cache**
  The external cache is the cache that sits between the processor and the system memory.

- **Quick Power On Self Test**
  This option speeds up Power on Self Test (POST) after you turn on the system power. If set as Enabled, BIOS will shorten or skip some check items during POST. The default setting is "Enabled".

Enabled	Enable Quick POST
Disabled	Normal POST

- **First/Second/Third Boot Device**
  These items let you select the 1st, 2nd, and 3rd devices that the system will search for during its boot-up sequence. There is a wide range of options for your selection.

- **Boot Other Device**
  This item allows the user to enable/disable the boot device not listed on the First/Second/Third boot devices option above. The default setting is "*Enabled*".

- **Boot Up NumLock Status**
  Set the the Num Lock status when the system is powered on. The default value is *"On"*.

- **Security Option**
  This item allows you to limit access to the system and Setup, or just to Setup. The default value is *"Setup"*.

System	If a wrong password is entered at the prompt, the system will not boot, the access to Setup will be denied, either.
Setup	If a wrong password is entered at the prompt, the system will boot, but the access to Setup will be denied.

NOTE *To disable the security, select PASSWORD SETTING at Main Menu and then you will be asked to enter a password. Do not type anything, just press <Enter> and it will disable the security. Once the security is disabled, the system will boot and you can enter Setup freely.*

- **APIC Mode**
  Use this item to enable or disable APIC (Advanced Programmable Interrupt Controller) mode that provides symmetric multi-

processing (SMP) for systems.

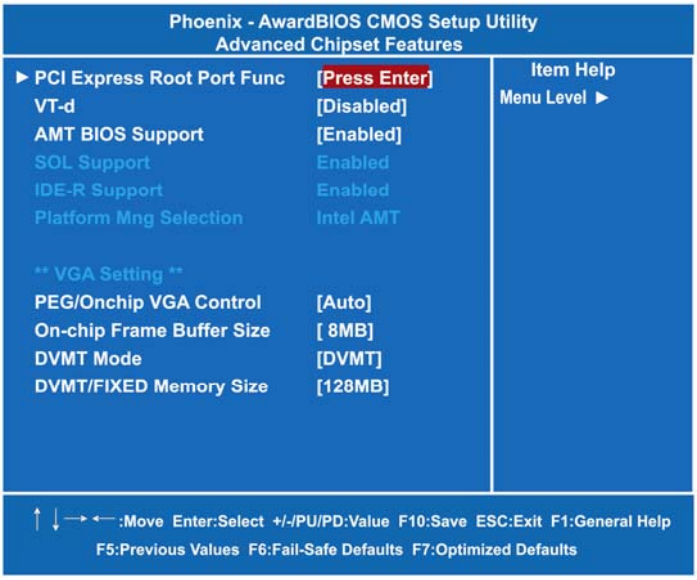
- **MPS Version Control For OS**
  This item specifies the version of the Multiprocessor Specification (MPS). Version 1.4 has extended configuration tables to improve support for multiple PCI bus configurations and provide future expandability.
- **Console Redirection**
  This item allows you to enable or disable the BIOS boot up and redirect to console port feature. Available options are "*Enable*" and "*Disable*".
- **Baud Rate**
  This item allows you to setup the data transfer rate for the console port. The default value is 9600. Available options are "*9600*", "*19200*", "*38400*", "*57600*" and "*115200*".
- **Agent after boot**
  This item allows you to enable or disable the agent after boot. Available options are "*Enable*" and "*Disable*".
- **ASF support**
  The item provides the ability to enable or disable the ASF support (Alert Standard Format), which is an industry standard protocol used with Local Area Network (LAN) controllers.
- **DMI Event Log**
  Use this item to enable or disablt the DMI Event Log function.
- **Clear All DMI Event Log**
  When this item is set to '*Yes*', it enables users to clear all DMI Event Log.
- **View DMI Event Log**
  Press [Enter] to view the contents of the event log, and this setting allows you to enable or disable the event logging function.
- **View DMI Events as Read**
  Press [Enter] to mark all DMI Events as having been read.
- **Event Log Capacity**
  This item shows space availability for the event log.
- **Event Log Validity**

This item shows the information in the event log as valid or invalid. If the System Event Log is marked as invalid, clear the Event Log and reboot.

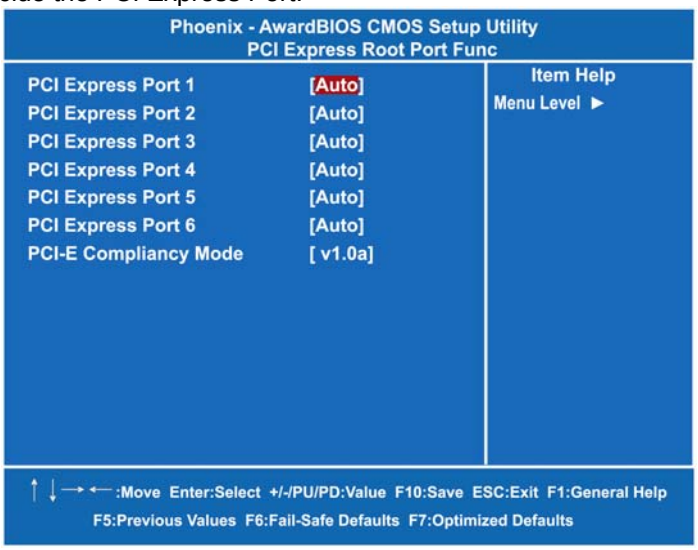
Press <Esc> to return to the Main Menu page.

3.7 Advanced Chipset Features

This section contains completely optimized chipset's features on the board that you are strongly recommended to leave all items on this page at their default values unless you are very familiar with the technical specifications of your system hardware.



- **PCI Express Root Port Func**
  Scroll to this item and press <Enter> to view the sub menu to decide the PCI Express Port.


Phoenix - AwardBIOS CMOS Setup Utility
PCI Express Root Port Func
PCI Express Port 1 [Auto]
PCI Express Port 2 [Auto]
PCI Express Port 3 [Auto]
PCI Express Port 4 [Auto]
PCI Express Port 5 [Auto]
PCI Express Port 6 [Auto]
PCI-E Compliancy Mode [v1.0a]
Item Help
Menu Level ►
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Press <Esc> to return to the Advanced Chipset Featurs page.

- **VT-d**
  Use this item to enable or disable the VT-d to support the remapping of I/O DMA transfers and device-generated interrupts.
- **AMT BIOS Support**
  You can enable thnis item to support AMT (active management technology) function to follow up the procedure for the access to AMI program screen.
- **SOL Support**
  You can enable this item to support SOL (Serial-Over-LAN) that can manage systems remotely.
- **IDE-R Support**
  Use this item to enable or disable the IDE-R (IDE Redirection) that allows an AMT enabled system to boot from an image, floppy, CD or DVD device which is located in the system running a management application.

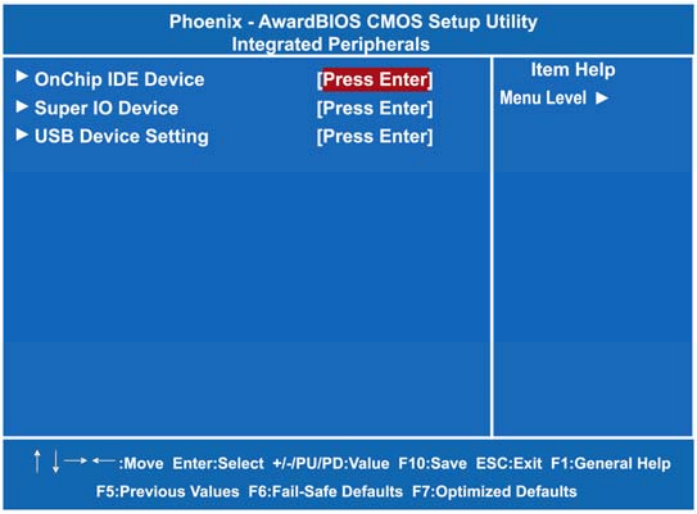
***** VGA Setting *****

- **PEG/Onchip VGA Control**
  Use this item to choose the primary display card.
- **On-Chip Frame Buffer Size**
  Use this item to set the VGA frame buffer size.
- **DVMT Mode**
  DVMT (Dynamic Video Memory Technology) helps you select the video mode.
- **DVMT/Fixed Memory Size**
  DVMT (Dynamic Video Memory Technology) allows you to select a maximum size of dynamic amount usage of the video memory. The system would configure the video memory dependent on your application.

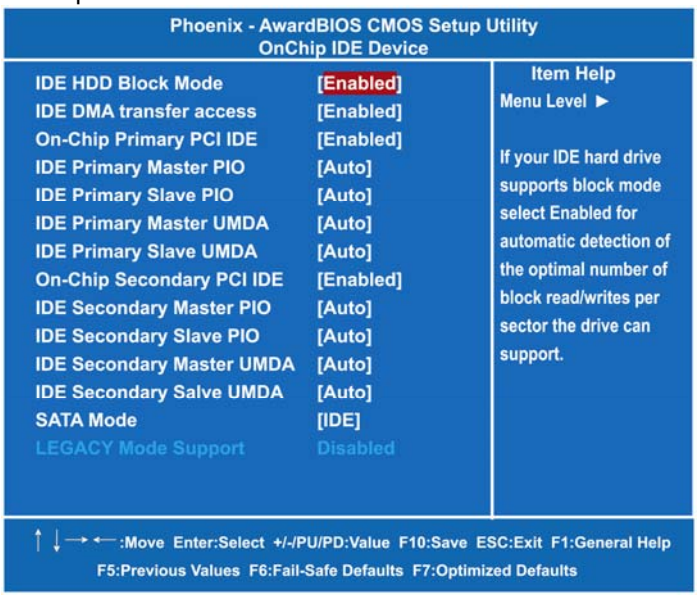
Press <Esc> to return to the Main Menu page.

3.8 Integrated Peripherals

This section allows you to configure your SuperIO Device, IDE Function and Onboard Device.


Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals
OnChip IDE Device [Press Enter]
Super IO Device [Press Enter]
USB Device Setting [Press Enter]
Item Help
Menu Level ►
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **OnChip IDE Device**
  Scroll to this item and press <Enter> to view the sub menu OnChip IDE Device.


Phoenix - AwardBIOS CMOS Setup Utility
OnChip IDE Device
IDE HDD Block Mode [Enabled]
IDE DMA transfer access [Enabled]
On-Chip Primary PCI IDE [Enabled]
IDE Primary Master PIO [Auto]
IDE Primary Slave PIO [Auto]
IDE Primary Master UMDA [Auto]
IDE Primary Slave UMDA [Auto]
On-Chip Secondary PCI IDE [Enabled]
IDE Secondary Master PIO [Auto]
IDE Secondary Slave PIO [Auto]
IDE Secondary Master UMDA [Auto]
IDE Secondary Salve UMDA [Auto]
SATA Mode [IDE]
LEGACY Mode Support Disabled
Item Help
Menu Level ►
If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

  - **IDE HDD Block Mode**
    Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.
  - **On-Chip Primary/Secondary PCI IDE**
    The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately. The default value is *"Enabled"*.

    NOTE *Choosing Disabled for these options will automatically remove the IDE Primary Master/ Slave PIO and/or IDE Secondary Master/Slave PIO items on the menu.*
  - **IDE Primary/Secondary Master/Slave PIO**
    The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that

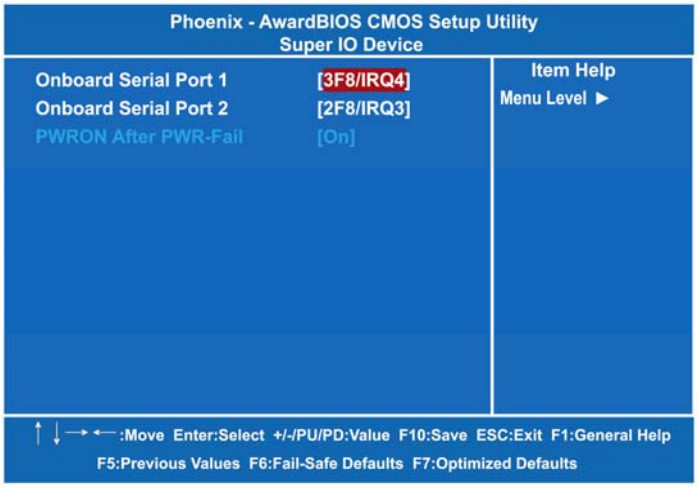
the onboard IDE interface supports. Modes 0 to 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

- **IDE Primary/Secondary Master/Slave UDMA**
  Select the mode of operation for the IDE drive. Ultra DMA-33/66/100/133 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver. If your hard drive and system software both support Ultra DMA-33/66/100/133, select Auto to enable UDMA mode by BIOS.
- **SATA Mode**
  There are these options for you to set up SATA mode: IDE, RAID or AHCI.
- **LEGACY Mode Support**
  Legacy mode support allows devices to function in an operating environment that is not USB-aware.

Press <Esc> to return to the Integrated Peripherals page.

- **Super IO Device**

  Scroll to this item and press <Enter> to view the sub menu Super IO Device.

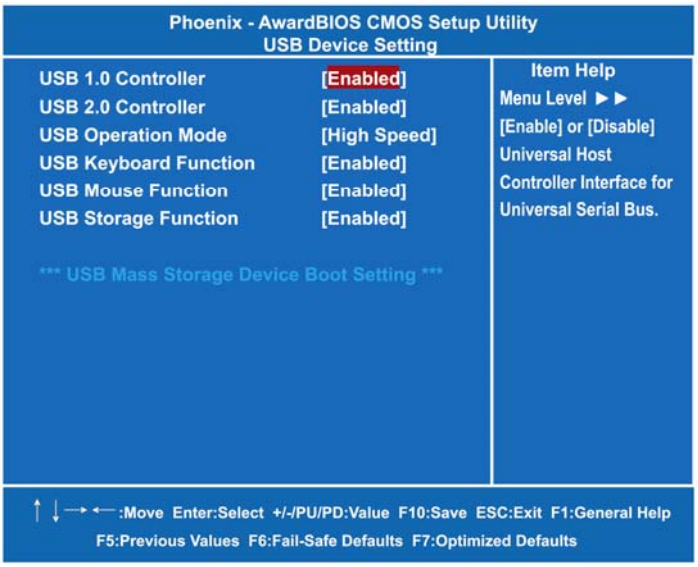


  - **Onboard Serial Port 1/2**
    Select an address and corresponding interrupt for the serial port. Options: *3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto*.
  - **PWRON After PWR-Fail**
    This item enables your computer to automatically restart or return to its operating status.

Press <Esc> to return to the Integrated Peripherals page.

- **USB Device Setting**

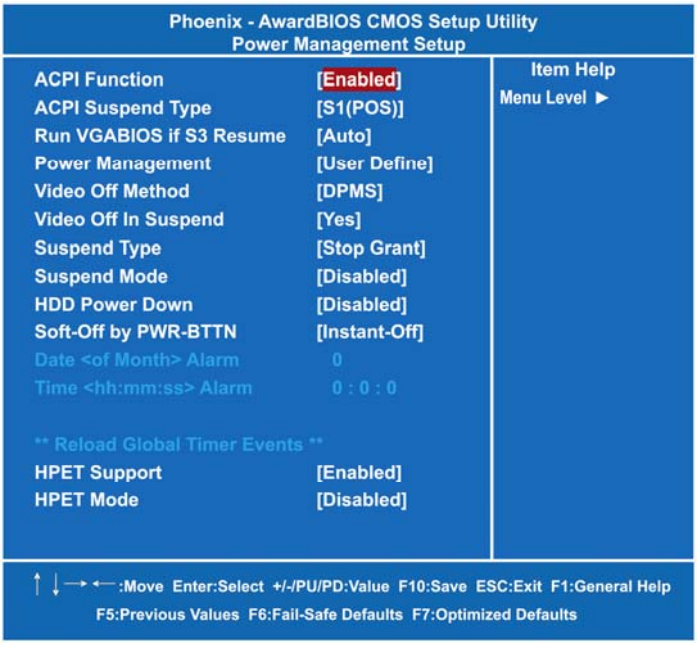
  Scroll to this item and press <Enter> to view the sub menu USB Device Setting. USB (CN16) is not working when USB2.0 Controller is disabled.


Phoenix - AwardBIOS CMOS Setup Utility
USB Device Setting
USB 1.0 Controller [Enabled]
USB 2.0 Controller [Enabled]
USB Operation Mode [High Speed]
USB Keyboard Function [Enabled]
USB Mouse Function [Enabled]
USB Storage Function [Enabled]
*** USB Mass Storage Device Boot Setting ***
Item Help
Menu Level ►►
[Enable] or [Disable] Universal Host Controller Interface for Universal Serial Bus.
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Press <Esc> twice to return to the Main Menu page.

3.9 Power Management Setup

The Power Management Setup allows you to save energy of your system effectively. It will shut down the hard disk and turn OFF video display after a period of inactivity.


Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup
ACPI Function [Enabled]
ACPI Suspend Type [S1(POS)]
Run VGABIOS if S3 Resume [Auto]
Power Management [User Define]
Video Off Method [DPMS]
Video Off In Suspend [Yes]
Suspend Type [Stop Grant]
Suspend Mode [Disabled]
HDD Power Down [Disabled]
Soft-Off by PWR-BTTN [Instant-Off]
Date <of Month> Alarm 0
Time <hh:mm:ss> Alarm 0 : 0 : 0
** Reload Global Timer Events **
HPET Support [Enabled]
HPET Mode [Disabled]
Item Help
Menu Level ►
↑ ↓ → ←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **ACPI Function**
  This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). The function is always "*Enabled*".

- **ACPI Suspend Type**
  This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 98SE, Windows ME and Windows 2000, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field. Options are:
  [S1 (POS)] The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system contexts.
  [S3 (STR)] The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is

saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a "wake up" event occurs.

- **Run VGABIOS if S3 Resume**
  When this item is set Auto, the system will run VGA BIOS if it is reaumed from the S3 state.

- **Power Management**
  This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes. The table below describes each power management mode:

Max Saving	It is maximum power savings, only available for SL CPUs. The inactivity period is 1 minute in each mode.
User Define	It sets each mode. Select time-out periods in the PM Timers section.
Min Saving	It is minimum power savings. The inactivity period is 1 hour in each mode (except the hard drive).
Disabled	Default value

- **Video Off Method**
  This setting determines the manner in which the monitor is blanked.

V/H SYNC+Blank	Turns OFF vertical and horizontal synchronization ports and writes blanks to the video buffer
DPMS	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards Association (VESA). Use the software supplied for your video subsystem to select video power management values.
Blank Screen	System only writes blanks to the video buffer.

- **Video Off In Suspend**
  This item defines if the video is powered down when the system is put into suspend mode.

- **Suspend Type**
  If this item is set to the default Stop Grant, the CPU will go into Idle Mode during power saving mode.

- **Suspend Mode**
  After the selected period of system inactivity (1 minute to 1 hour), all devices except the CPU shut off. The default value is *"Disabled"*.

Disabled	System will never enter SUSPEND mode
1/2/4/6/8/10/20/30/40 Min/1 Hr	Defines the continuous idle time before the system entering SUSPEND mode. If any item defined in (J) is enabled & active, SUSPEND timer will be reloaded

- **HDD Power Down**
  If HDD activity is not detected for the length of time specified in this field, the hard disk drive will be powered down while all other devices remain active.

- **Soft-Off by PWR-BTTN**
  This option only works with systems using an ATX power supply. It also allows the user to define which type of soft power OFF sequence the system will follow. The default value is "Instant-Off".

Instant-Off	This option follows the conventional manner systems perform when power is turned OFF. Instant-Off is a soft power OFF sequence requiring only the switching of the power supply button to OFF
Delay 4 Sec.	Upon turning OFF system from the power switch, this option will delay the complete system power OFF sequence by approximately 4 seconds. Within this delay period, system will temporarily enter into Suspend Mode enabling you to restart the system at once.

**** Reload Global Timer Events ****

Global Timer (power management) events can prevent the system from entering a power saving mode or can awaken the system from such a mode.

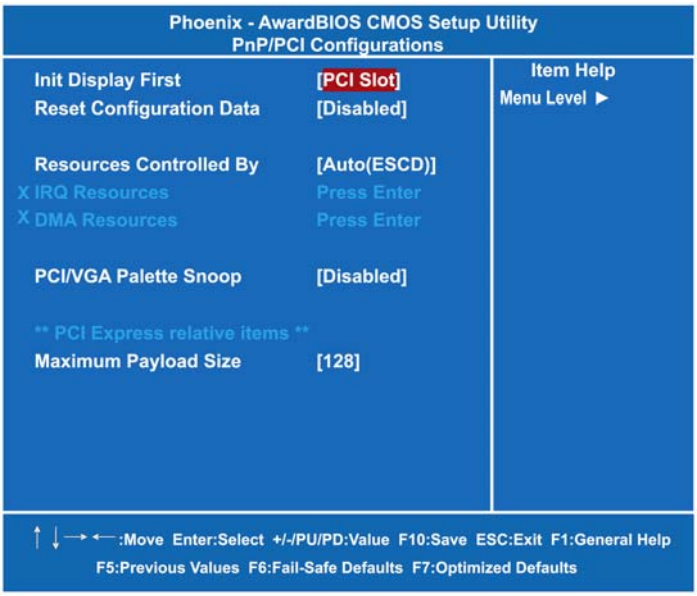
- **HPET Support**
  Use this item to enable or disable HPET (High Precision Event Timer), which is designed to have very fine-grained resolution, fast access times, and support for aperiodic behavior.

- **HPET Mode**
  Use this item to configure the HPET (High Precision Event Timer) mode.

Press <Esc> to return to the Main Menu page.

3.10 PnP/PCI Configuration Setup

This section describes the configuration of PCI (Personal Computer Interconnect) bus system, which allows I/O devices to operate at speeds close to the CPU speed while communicating with other important components. This section covers very technical items that only experienced users could change default settings.


Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations
Item Help
Menu Level ►
Init Display First [PCI Slot]
Reset Configuration Data [Disabled]
Resources Controlled By [Auto(ESCD)]
X IRQ Resources Press Enter
X DMA Resources Press Enter
PCI/VGA Palette Snoop [Disabled]
** PCI Express relative items **
Maximum Payload Size [128]
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **Init Display First**
  This item allows you to decide whether PCI Slot or AGP to be the first primary display card.
- **Reset Configuration Data**
  Normally, you leave this item Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup or if installing a new add-on cause the system reconfiguration a serious conflict that the operating system can not boot. Options: Enabled, Disabled.

- **Resources Controlled By**
  The Award Plug and Play BIOS can automatically configure all boot and Plug and Play-compatible devices. If you select Auto, all interrupt request (IRQ), DMA assignment, and Used DMA fields disappear, as the BIOS automatically assigns them. The default value is *"Manual"*.
- **IRQ Resources**
  When resources are controlled manually, assign each system interrupt to one of the following types in accordance with the type of devices using the interrupt:
  1. Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).
  2. PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

  The default value is *"PCI/ISA PnP"*.
- **DMA Resources**
  When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:
  Legcy ISA Devices compliant with the original PC AT bus specification, requiring a specific DMA channel.
  PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.
  The default value is *"PCI/ISA PnP"*.
- **PCI/VGA Palette Snoop**
  Some non-standard VGA display cards may not show colors properly. This item allows you to set whether MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. When enabled, a PCI/VGA can work with a MPEG ISA/VESA VGA card; when disabled, a PCI/VGA cannot work with a MPEG ISA/VESA Card.

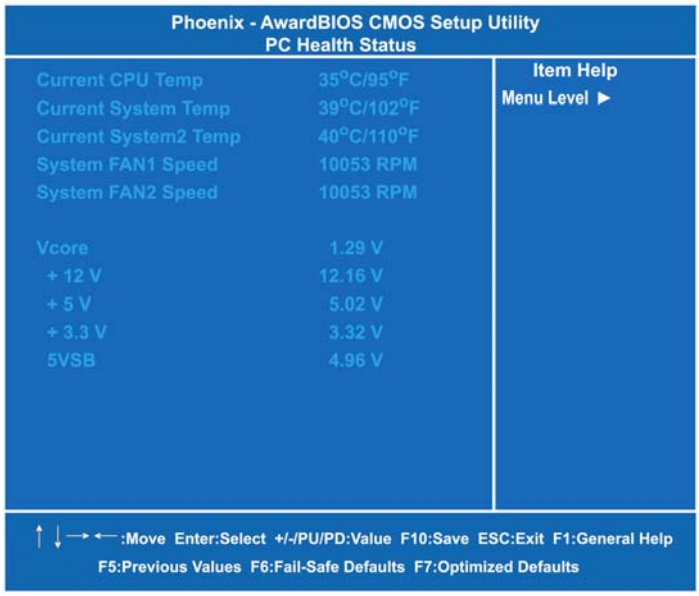
**** PCI Express relative items ****

- **Maximum Payload Size**
  When using DDR SDRAM and Buffer size selection, another consideration in designing a payload memory is the size of the buffer for data storage. Maximum Payload Size defines the maximum TLP (Transaction Layer Packet) data payload size for the device.

Press <Esc> to return to the Main Menu page.

3.11 PC Health Status

This section supports hardware monitering that lets you monitor those parameters for critical voltages, temperatures and fan speed of the board.

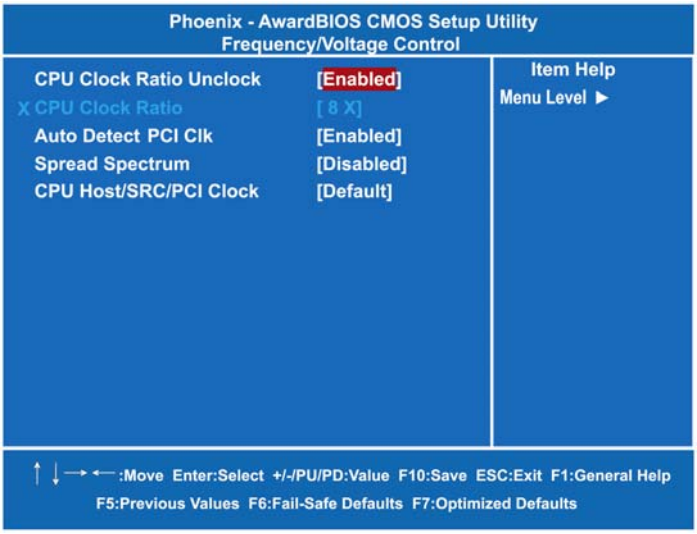

Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status
Current CPU Temp 35°C/95°F
Current System Temp 39°C/102°F
Current System2 Temp 40°C/110°F
System FAN1 Speed 10053 RPM
System FAN2 Speed 10053 RPM
Vcore 1.29 V
+ 12 V 12.16 V
+ 5 V 5.02 V
+ 3.3 V 3.32 V
5VSB 4.96 V
Item Help
Menu Level ►
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **Current CPU Temperature**
  These read-only fields show the functions of the hardware thermal sensor by CPU thermal diode that monitors the chip blocks to ensure a stable system.
- **Current SYSTEM Temperature**
  Show you the current system temperature.
- **Vcore 12V/5V/3.3V**
  Show you the voltage of 12V/5V/3.3V.

Press <Esc> to return to the Main Menu page.

3.12 Frequency/Voltage Control

This section is to control the CPU frequency and Supply Voltage, DIMM OverVoltage and AGP voltage.

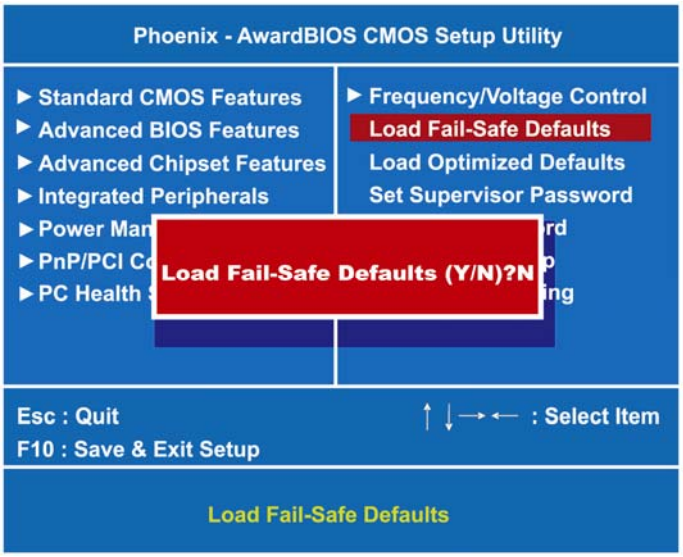

Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control
CPU Clock Ratio Unclock [Enabled]
X CPU Clock Ratio [8 X]
Auto Detect PCI Clk [Enabled]
Spread Spectrum [Disabled]
CPU Host/SRC/PCI Clock [Default]
Item Help
Menu Level ►
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **CPU Clock Ratio Unlock**
  Use this item to unlock CPU multiplier.
- **CPU Clock Ratio**
  Use this item to select the CPU's frequency.
- **Auto Detect PCI Clk**
  The enabled item can automatically disable the clock source for a PCI slot without a module, to reduce EMI (ElectroMagnetic Interference).
- **Spread Spectrum**
  If spread spectrum is enabled, EMI (ElectroMagnetic Interference) generated by the system can be significantly reduced.
- **CPU Host/PCI Clock**
  Select Default or select a timing combination for the CPU and the PCI bus. When set to Default, the BIOS uses the actual CPU and PCI bus clock values.

Press <Esc> to return to the Main Menu page.

3.13 Load Fail-Safe Defaults

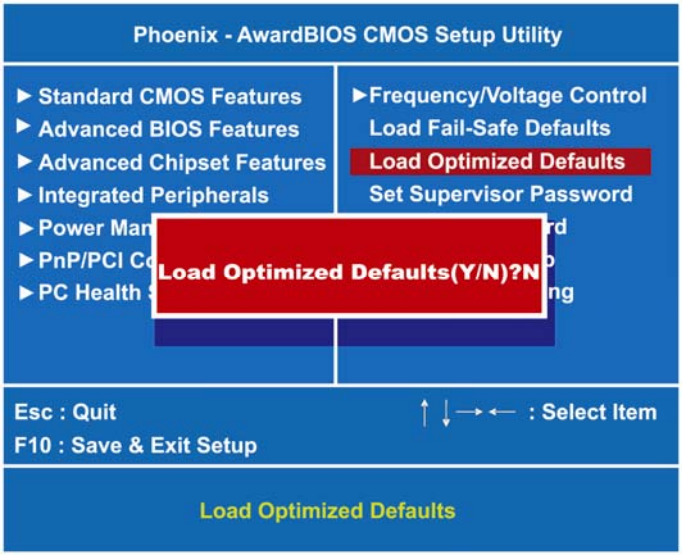
When you press <Enter> on this item, a confirmation dialog box pops out to show you such a message:



Please press "Y" to load default values that will be factory settings for accomplishing the optimal performance of system operations.

3.14 Load Optimized Defaults

This option allows you to load your system configuration with default values. These default settings are optimized to enable high performance features.



To load CMOS SRAM with SETUP default values, please enter "Y". If not, please enter "N".

3.15 Set Supervisor/User Password

You can set a supervisor or user password, or both of them. The differences between them are:

1. **Supervisor password:** You can enter and change the options on the setup menu.
2. **User password:** You can just enter, but have no right to change the options on the setup menu.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD

Type a maximum eight-character password, and press <Enter>. This typed password will clear previously entered password from the CMOS memory. You will be asked to confirm this password. Type this password again and press <Enter>. You may also press <Esc> to abort this selection and not enter a password.

To disable the password, just press <Enter> when you are prompted to enter a password. A message will confirm the password is getting disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED

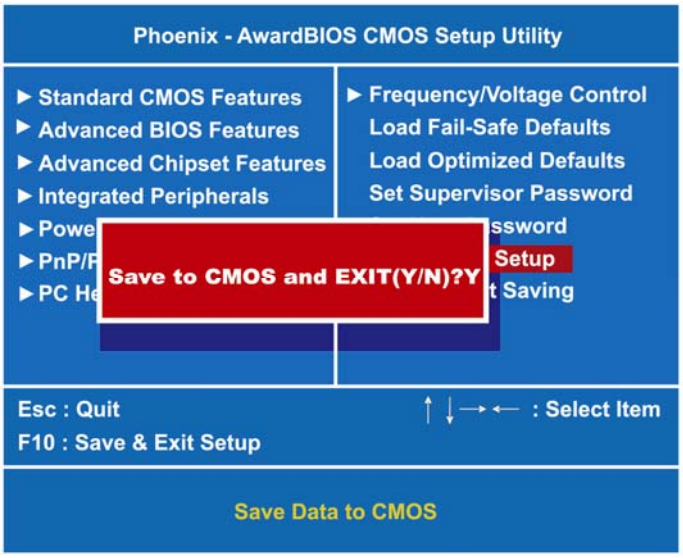
When a password is enabled, you have to type it every time you enter the Setup. It prevents any unauthorized persons from changing your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time the system reboots. This would prevent unauthorized use of your computer.

You decide when the password is required for the BIOS Features Setup Menu and its Security option. If the Security option is set to "System", the password is required during booting up and entry into the Setup; if it is set as "Setup", a prompt will only appear before entering the Setup.

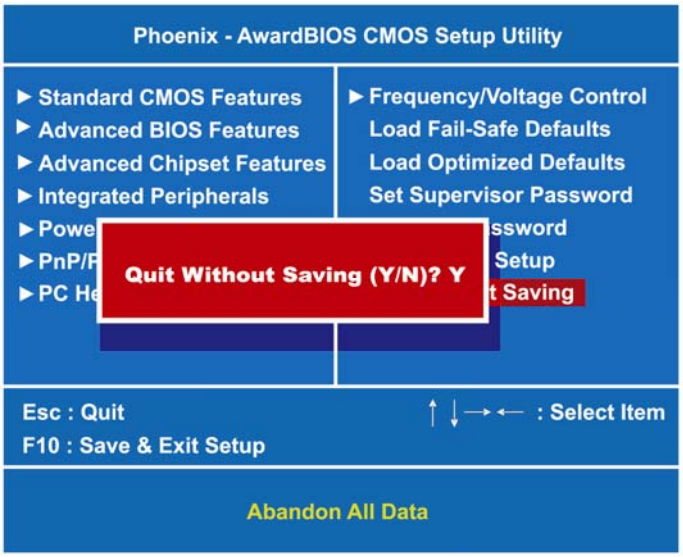
3.16 Save & Exit Setup

This section allows you to determine whether or not to accept your modifications. Type "Y" to quit the setup utility and save all changes into the CMOS memory. Type "N" to bring you back to the Setup utility.



3.17 Exit Without Saving

Select this option to exit the Setup utility without saving changes you have made in this session. Type "Y", and it will quit the Setup utility without saving your modifications. Type "N" to return to the Setup utility.



MEMO

Appendix A
Enabling LAN Bypass Feature

What is the LAN by-pass meant for **NA-821 Series**? It doesn't have any down time in network connections for two other network segments (LAN1 and LAN2) when any fetal errors occur to this device.

The LAN by-pass feature covers three levels as below:

1. **Power loss**
   While the AC power loss occurs to this device, the LAN1 and LAN2 still can communicate with each other through hardware relay like as a short cut between two segments. If the power inlet can be normally done, the relay will turn to another correct position.

2. **GPIO control**
   It acts like a switch of the application software. You can enable the hardware relay feature through the GPIO control through the application programs. Then, the software solution provider can be more flexible to make it close with the program.

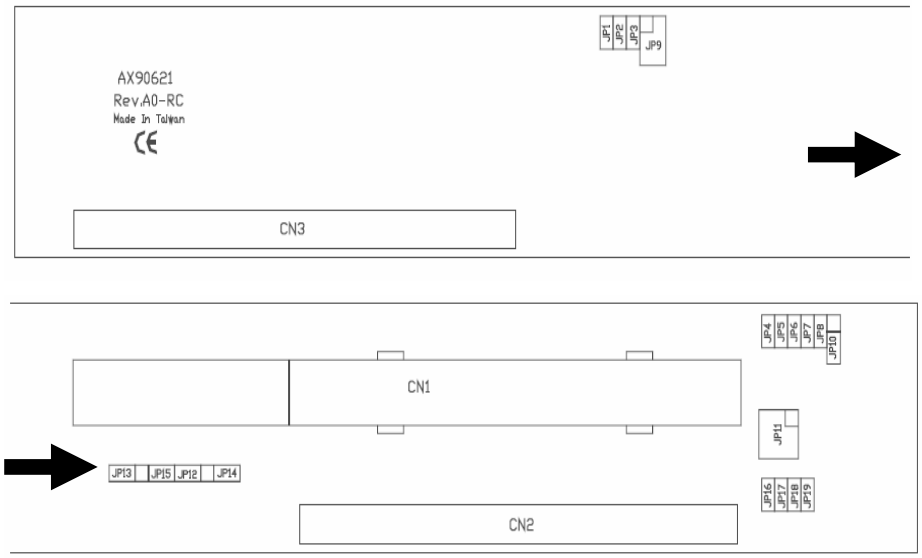
3. **WDT (Watchdog Timer)**
   The hardware supports the WDT (Watchdog Timer) function. While time-out happens after a defaulted period, the WDT will reset the system or make a short cut for two specific segments by hardware relay.

The sample codes for the above features can be found in the CD, and they are only for cumtomers' reference as remarked.

MEMO

Appendix B
Module Jumper Settings

B.1 AX90621



Arbiter Enables/ Disables

Description	Function	Jumper Setting
Arbiter Enables/ Disables	Enables the Arbiter (Default)	JP3 Open
	Disables the Arbiter	JP3 Short

PCI-X Singal Control(JP4 - JP8)

Description	Function	Jumper
PCI-X signal control	3V DUAL unlink (Default)	JP4 Open
	3V DUAL link	JP4 Short
	Arbiter GNT1 unlink (Default)	JP5 Open
	Arbiter GNT1 link	JP5 Short
	PX REQ-2 unlink (Default)	JP6 Open
	PX REQ-2 link	JP6 Short
	PX GNT-3 unlink (Default)	JP7 Open
	PX GNT-3 link	JP7 Short
	PX REQ-3 unlink (Default)	JP8 Open
	PX REQ-3 link	JP8 Short
PC5 Link Select	PX GNT-2 LINK	JP10(1-2)
	PX AD20 LINK (Default)	JP10(2-3)

PCI-X Mode Select (Optional)

JP9	JP2	JP1	Clock Frequency
1-2 Auto (Default)	N/A	N/A	
3-4 PCI-X 50/66	OPEN	OPEN	50MHz
	SHORT		66MHz
5-6 PCI 33/66	OPEN	SHORT	25MHz
	SHORT		33MHz
	OPEN	OPEN	50MHz
	SHORT		66MHz
All Open PCI-X 100/133	OPEN	OPEN	100MHz
	SHORT		133MHz

Remark: when JP9 select 1-2, do not connect JP1 & JP2

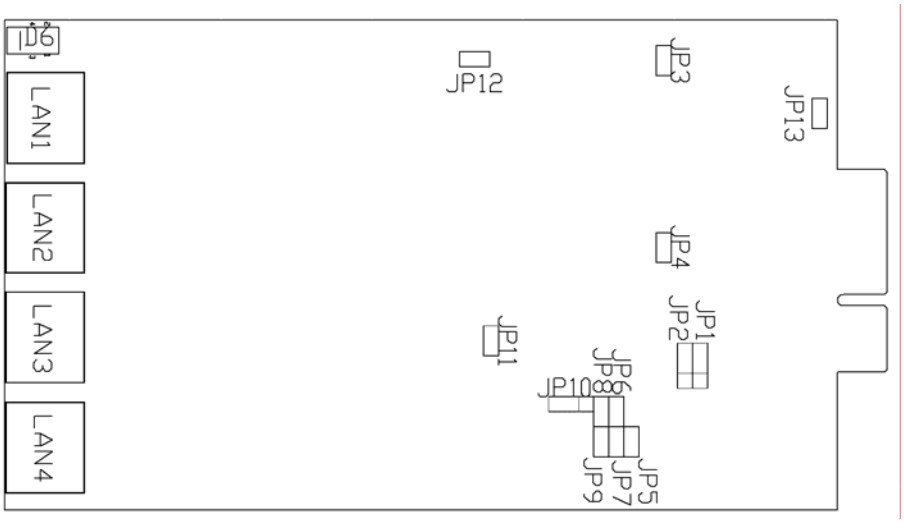
PCI-X Bus VIO Select

Description	Function	Jumper Setting
PCI-X Bus VIO	3.3V DEFAULT (Default)	JP11 (1-2), (4-5),(7-8)
	5V	JP11 (2-3), (5-6),(8-9)

PCI(CN2) IRQ Routing Setting(only select one on JP16, JP17, JP18 or JP19)

Description	Function	Jumper Setting
IRQ Routing	IRQH	JP16
	IRQG	JP17
	IRQF	JP18
	IRQE	JP19 (Default)

B.2 AX93125



LAN bypass status LED (D6):

Upper LED for lan1-2 port bypass status LED. Lower LED for lan3-4 port bypass status LED. LED active is lan port in normal operation status. LED inactive is lan port in lan bypass status.

LAN Bypass Function Jumper Setting (JP2, JP5, JP6, JP7, JP8, JP9, JP10):

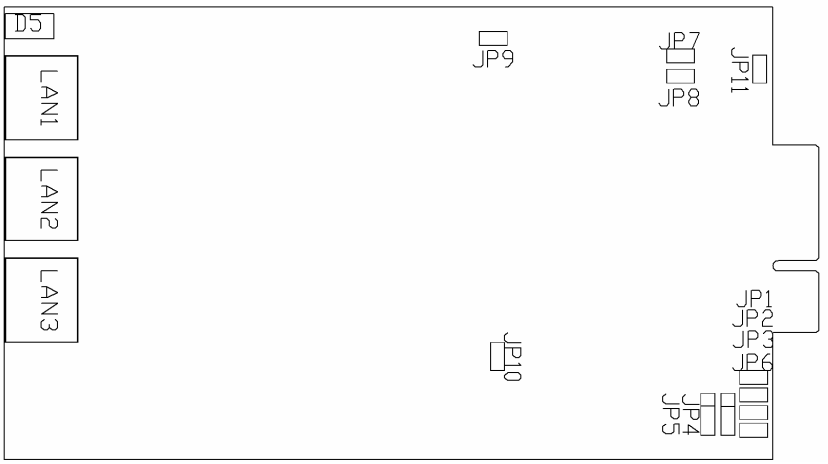
LAN by pass divided into two groups: Group 1 for LAN 1& LAN2 Group 2 for LAN3 & LAN 4

Description	Function	Jumper Setting
Group 1 LAN1- LAN2	By WDT or GPIO (Default)	JP10 Open
	Always not bypass	JP10 short (1-2)
	Always bypass	JP10 short (2-3)
	GPIO Normal Bypass Active(Default)	JP8 Short, JP9 Open
	GPIO Normal Bypass Inactive	JP8 Open, JP9 Short
Group 2 LAN3- LAN4	By WDT or GPIO (Default)	JP2 Open
	Always not bypass	JP2 short (1-2)
	Always bypass	JP2 short (2-3)
	GPIO Normal Bypass Inactive (Default)	JP5 Short JP6 Open JP7 Open
	GPIO Normal Bypass Active	JP5 Open JP6 Short JP7 Open
	GPIO Normal Bypass Inactive	JP5 Open JP6 Open JP7 Short

When you enter the system LAN bypass is active without setup the bios or application, and also you can control the LAN bypass to active or inactive by GPIO.

Group 1 JP8 & JP9, Group2 JP5 & JP6 & JP7 are used the same GPIO control that come from CPU board.

B.3 AX93127 & AX93128



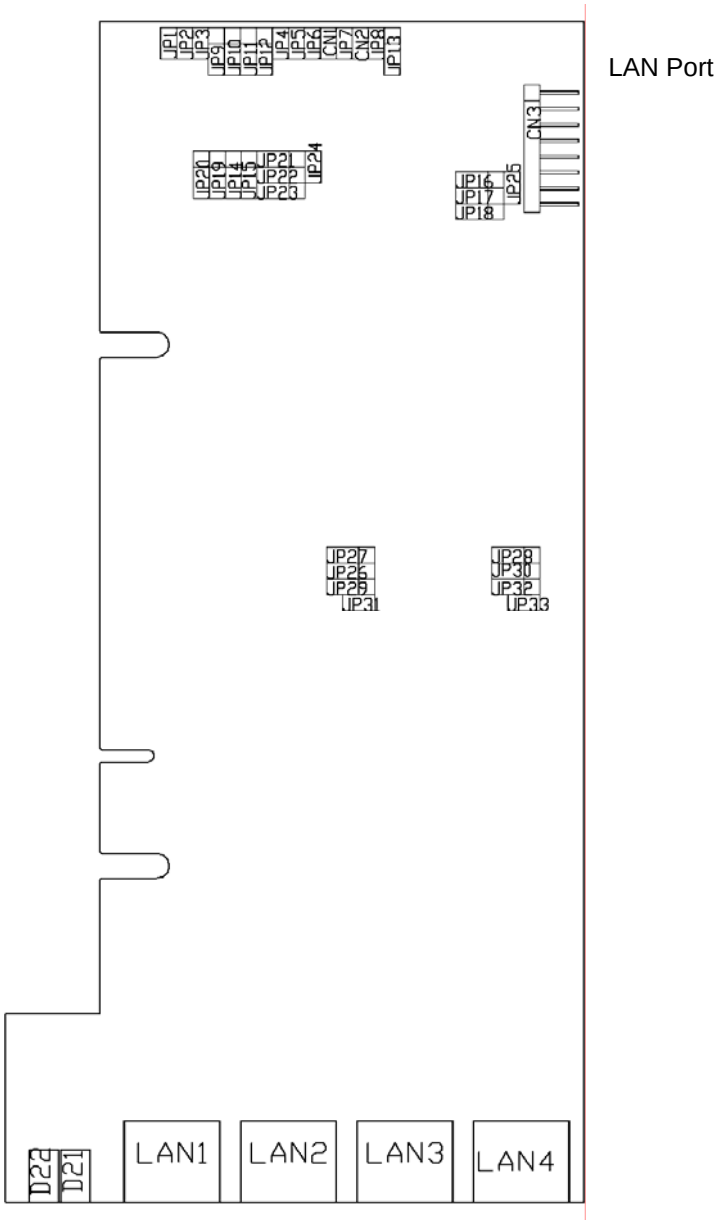
LAN Bypass Function Jumper Setting (JP1, JP2, JP3, and JP4) (Optional):

LAN bypass control LAN1, LAN2 only.

Description	Function	Jumper Setting
Group 1 LAN1- LAN2 (Optional)	By WDT or GPIO (Default)	JP4 Open
	Always not bypass	JP4 short (1-2)
	Always bypass	JP4 short (2-3)
	GPIO Normal Bypass Inactive (Default)	JP3 Short JP2 Open JP1 Open
	GPIO Normal Bypass Active	JP3 Open JP2 Short JP1 Open
	GPIO Normal Bypass Inactive	JP3 Open JP2 Open JP1 Short

When you enter the system LAN bypass is active without setup the bios or application, and also you can control the LAN bypass to active or inactive by GPIO.

B.4 AX93129


LAN Port
JP1
JP2
JP3
JP9
JP10
JP11
JP12
JP4
JP5
JP6
CN1
JP7
CN2
JP8
JP13
CN3
JP20
JP19
JP14
JP15
JP21
JP22
JP23
JP24
JP16
JP17
JP18
JP25
JP27
JP26
JP29
JP31
JP28
JP30
JP32
JP33
D22
D21
LAN1
LAN2
LAN3
LAN4

Enable/Disable Jumper Setting (JP24, JP25, JP31, JP33):

Description	Function	Jumper Setting
LAN1	Normal (Default)	JP31 Open
	Disable	JP31 Short
LAN2	Normal (Default)	JP24 Open
	Disable	JP24 Short
LAN3	Normal (Default)	JP25 Open
	Disable	JP25 Short
LAN4	Normal (Default)	JP33 Open
	Disable	JP33 Short

Power & HDD LED (D22):

Upper LED for power status LED. Lower LED for HDD access status LED.

LAN bypass status LED (D21):

Upper LED for lan1-2 port bypass status LED. Lower LED for lan3-4 port bypass status LED. LED active is lan port in normal operation status. LED inactive is lan port in lan bypass status.

LAN Bypass Function Jumper Setting (JP1, JP2, JP3, JP4, JP5, JP6, JP9, JP11):
LAN by pass divided into two groups:
Group 1 for LAN 1& LAN2 ； Group 2 for LAN3 & LAN 4

Description	Function	Jumper Setting
Group 1 LAN1- LAN2	By WDT or GPIO (Default)	JP9 Open
	Always not bypass	JP9 short (1-2)
	Always bypass	JP9 short (2-3)
	GPIO Normal Bypass Inactive (Default)	JP1 Open JP2 short JP3 Open
	GPIO Normal Bypass Active	JP1 short JP2 Open JP3 Open
	GPIO Normal Bypass Inactive	JP1 Open JP2 Open JP3 short
Group 2 LAN3- LAN4	By WDT or GPIO (Default)	JP11 Open
	Always not bypass	JP11 short (1-2)
	Always bypass	JP11 short (2-3)
	GPIO Normal Bypass Inactive (Default)	JP6 Open JP5 short JP4 Open
	GPIO Normal Bypass Active	JP6 short JP5 Open JP4 Open
	GPIO Normal Bypass Inactive	JP6 Open JP5 Open JP4 short

When you enter the system LAN bypass is active without setup the bios or application, and also you can control the LAN bypass to active or inactive by GPIO.

Group 1# JP1 & JP2 & JP3 , Group2 JP4 & JP5 & JP6 are used the same GPIO control that come from CPU board.

LAN PCI Routing Table Jumper Setting:

LAN Port IRQ Routing Setting (JP14, JP15, JP19, JP20):

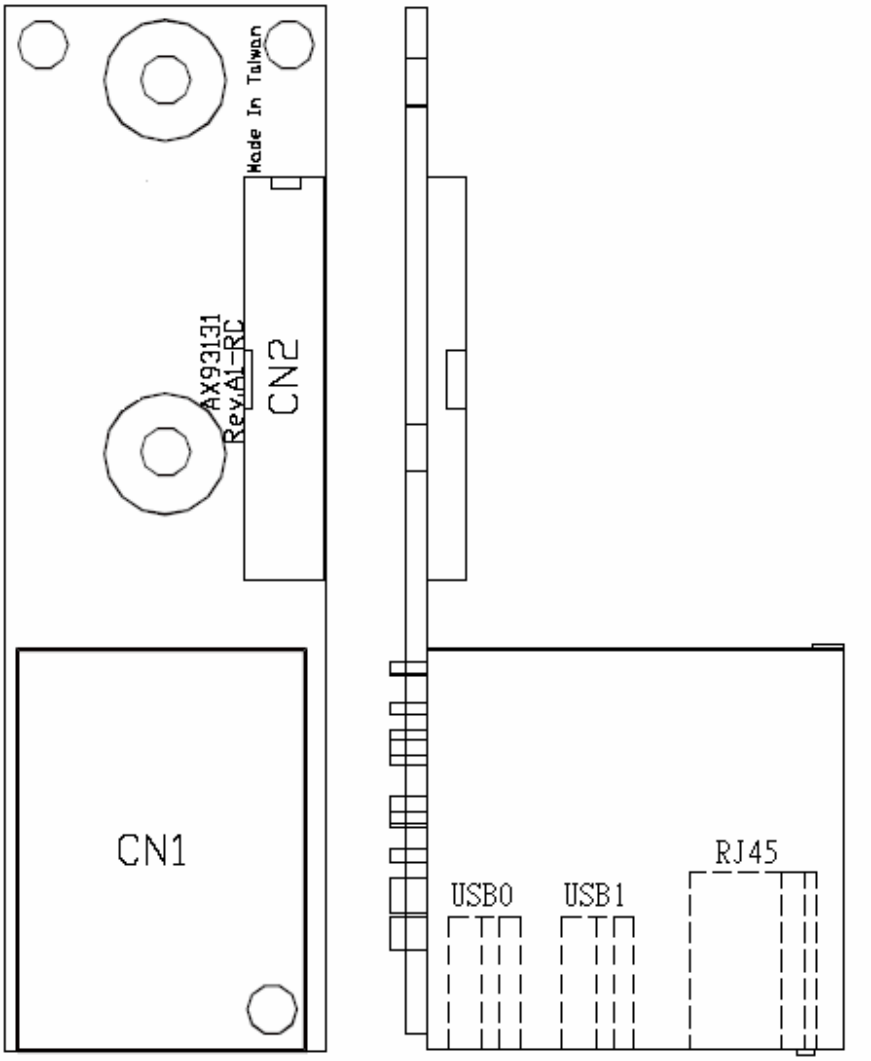
Description	Function	Jumper Setting
LAN1	IRQ A (Default)	JP14 short (1-2)
	IRQ D	JP14 short (2-3)
LAN2	IRQ B (Default)	JP20 short (1-2)
	IRQ C	JP20 short (2-3)
LAN3	IRQ C (Default)	JP19 short (1-2)
	IRQ B	JP19 short (2-3)
LAN4	IRQ D (Default)	JP15 short (1-2)
	IRQ A	JP15 short (2-3)

LAN Port ID Select Setting:

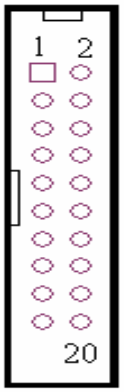
LAN Port	LAN 1	LAN 2	LAN 3	LAN 4
ID 20	JP27 short 2-3 (Default)	X	X	JP28 short 1-2
ID 21	X	JP21 short 2-3 (Default)	JP16 short 1-2	X
ID 22	X	JP21 short 1-2	JP16 short 2-3 (Default)	X
ID 23	JP27 short 1-2	X	X	JP28 short 2-3 (Default)
ID 24	JP26 short 2-3	X	X	JP30 short 1-2
ID 25	X	JP22 short 2-3	JP17 short 1-2	X

LAN Port	LAN 1	LAN 2	LAN 3	LAN 4
ID 26	X	JP22 short 1-2	JP17 short 2-3	X
ID 27	JP26 short 1-2	X	X	JP30 short 2-3
ID 28	JP29 short 2-3	X	X	JP32 short 1-2
ID 29	X	JP23 short 2-3	JP17 short 1-2	X
ID 30	X	JP23 short 1-2	JP17 short 2-3	X
ID 31	JP29 short 1-2	X	X	JP32 short 2-3

B.5 AX93131

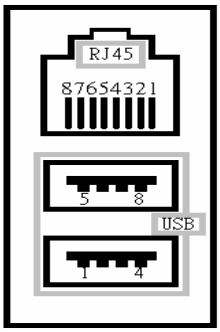


COM Port & USB Connector (CN2) connect SBC8A821 (CN20)



Pin	Signal	Pin	Signal
1	USB_D0P	2	USB_D0N
3	IO_GND	4	IO_GND
5	USB_D1P	6	USB_D1N
7	IO_GND	8	USB_DUAL
9	IO_GND	10	USB_DUAL
11	NSOUT1	12	NDSR1-
13	NDCD1-	14	NRTS1-
15	NRI1-	16	NDTR1-
17	NCTS1-	18	NSIN1
19	IO_GND	20	USB_OC0

COM Port & USB Connectors (CN1)



Pin	RJ45 Signal	Pin	USB Signal
1	NDSR1-	1	USBF_VCC0
2	NRTS1-	2	USBF_D0N
3	IO_GND	3	USBF_D0P
4	NSOUT1	4	IO_GND
5	NSIN1	5	USBF_VCC0
6	NDCD1-	6	USBF_D1N
7	NCTS1-	7	USBF_D1P
8	NDTR1-	8	IO_GND

Appendix C
AMT Settings

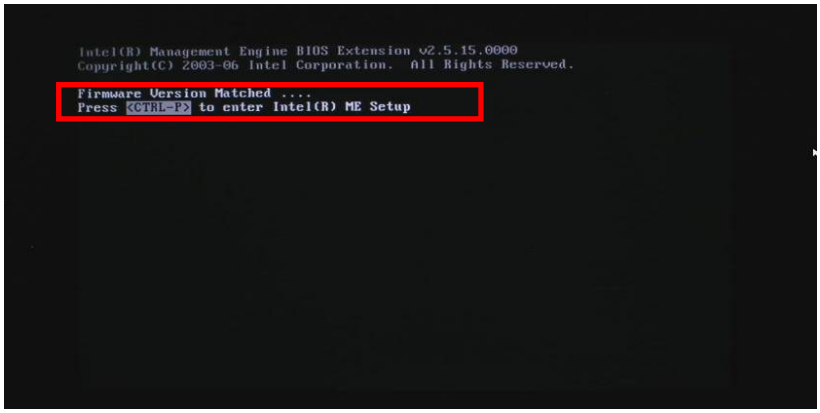
The Intel® Active Management Technology (Intel® AMT) has decreased a major barrier to IT efficiency that uses built-in platform capabilities and popular third-party management and security applications to allow IT a better discovering, healing, and protection their networked computing assets.

In order to utilize Intel AMT you must enter the ME BIOS (CTRL + P during system startup), change the ME BIOS password, and then select "Intel® AMT" as the manageability feature.

C.1 Entering MEBx

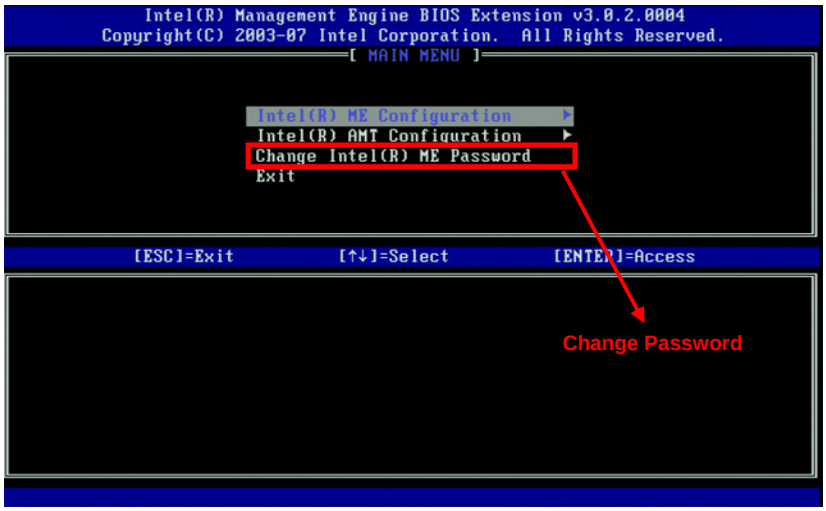
1. You must go to BIOS TO start AMT function.
2. Exit from BIOS after starting AMT, and press Ctrl+P to enter MEBx Setting.

It is better to press Ctrl+P before the screen popping out.


Intel(R) Management Engine BIOS Extension v2.5.15.0000
Copyright(C) 2003-06 Intel Corporation. All Rights Reserved.
Firmware Version Matched ....
Press <CTRL-P> to enter Intel(R) ME Setup

C.2 Set & Change Password

1. You will be asked to set a password when first log in. The default password is 'admin'.
2. You will be asked to change the password before setting ME.
3. You must confirm your new password while revising. (as ***Remark 1***)



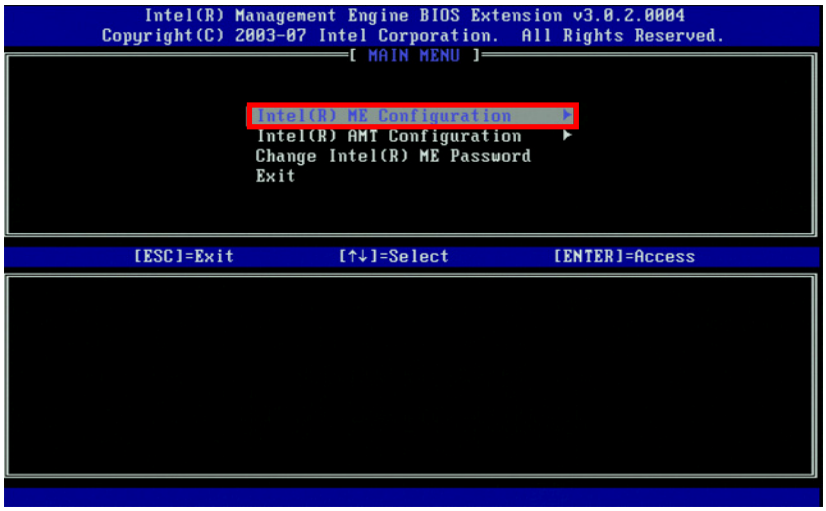
Remark 1 The new password must contain:
(example: **!!11qqQQ**) (default value)

- Eight characters
- One upper case
- One lower case
- One number
- One special symbol, such as **!** 、**$** or **;** 、**,**
  (、**"** , excepted)

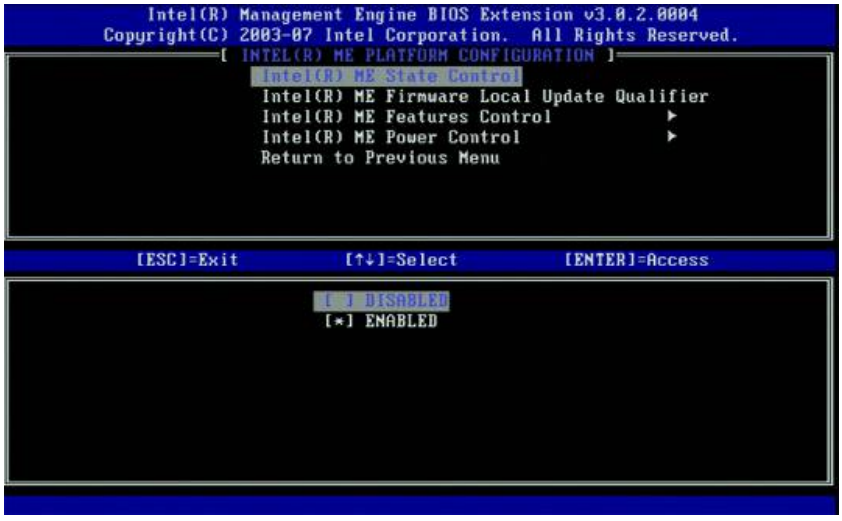
Underline (_) and space are valid characters for password, but they won't make higher complexity.

C.3 Intel® ME Settings

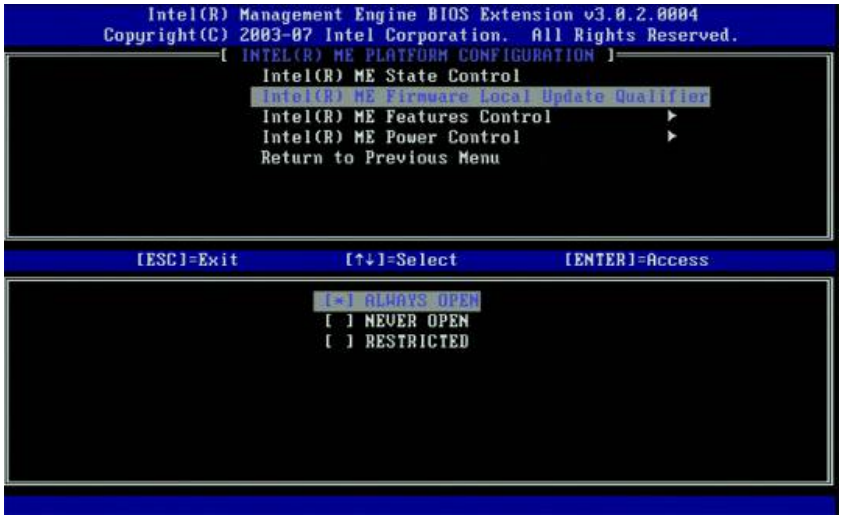
1. Select Intel® ME Configuration.



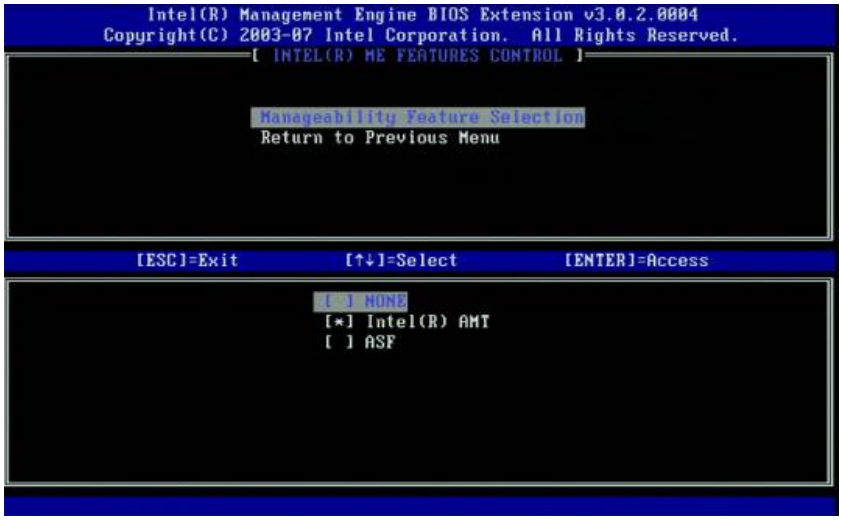
2. Select Intel® ME State Control, and set it to '***Enabled***'.



3. Select Intel® ME Firmware Local Update Qualifier, and set it to '***Always Open***'.



4. Select Intel® ME Features Control, next Manageability Feature Selection, and set it to '***Intel® AMT***'.



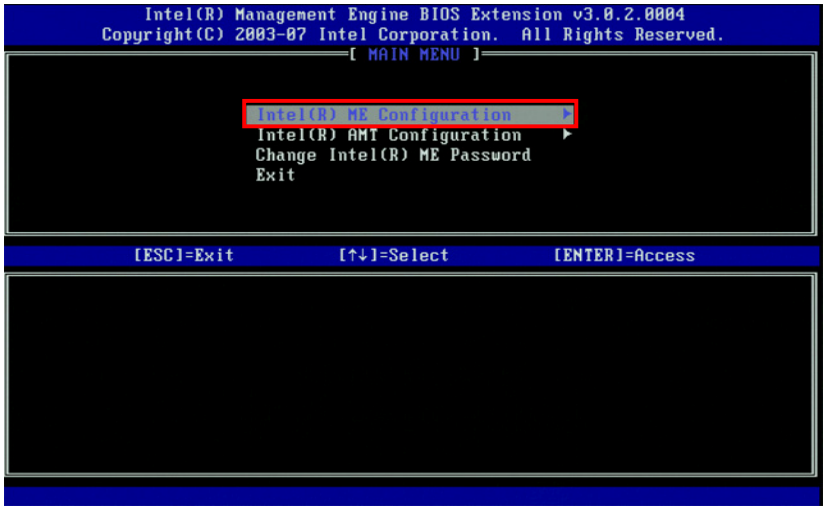
5. Select Intel® ME Power Control, next ME On in Host Sleep States, and click the last option.

Intel(R) Management Engine BIOS Extension v3.0.2.0004
Copyright(C) 2003-07 Intel Corporation. All Rights Reserved.
[INTEL(R) ME POWER CONTROL]
Intel(R) ME ON in Host Sleep States
Return to Previous Menu
[ESC]=Exit
[↑↓]=Select
[ENTER]=Access
[ ] Desktop: ON in S0
[ ] Desktop: ON in S0, S3
[ ] Desktop: ON in S0, S3, S4-5
[ ] Desktop: ON in S0, ME WoL in S3
[ ] Desktop: ON in S0, ME WoL in S3, S4-5
[ ] Desktop: ON in S0, S3, S4-5, OFF After Power Loss
[*] Desktop: ON in S0, ME WoL in S3, S4-5, OFF After Power Loss

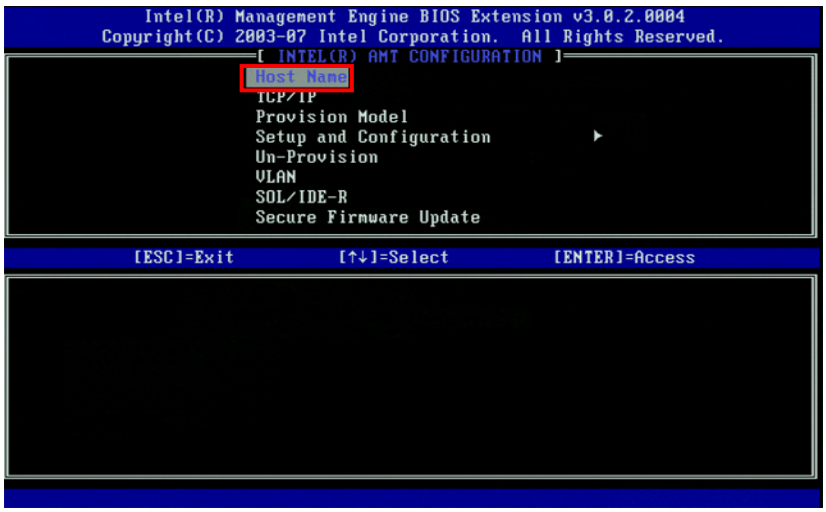
6. Exit from ME setting (the system will restart if first time setting).

C.4 Intel® AMT Settings

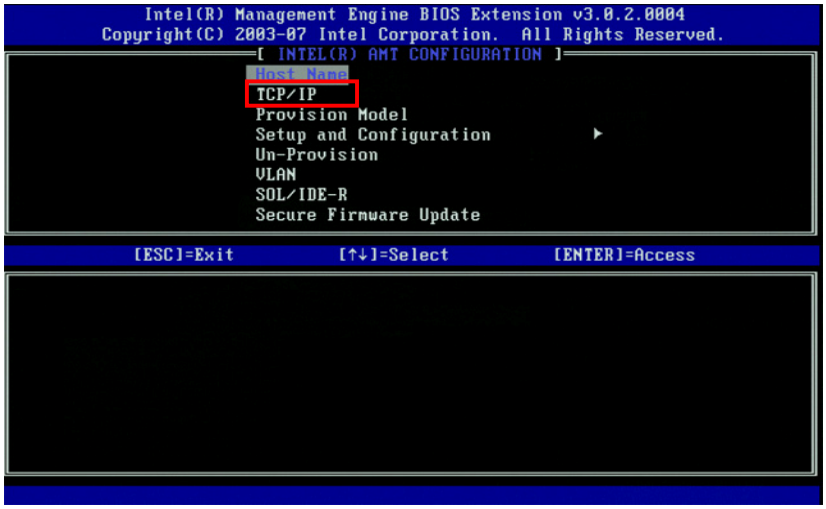
1. Select Intel® AMT Configuration.



2. Key in the Host Name. If Intel® AMT set to '***DHCP***', the Host name must be identical to the operating system mechanic.



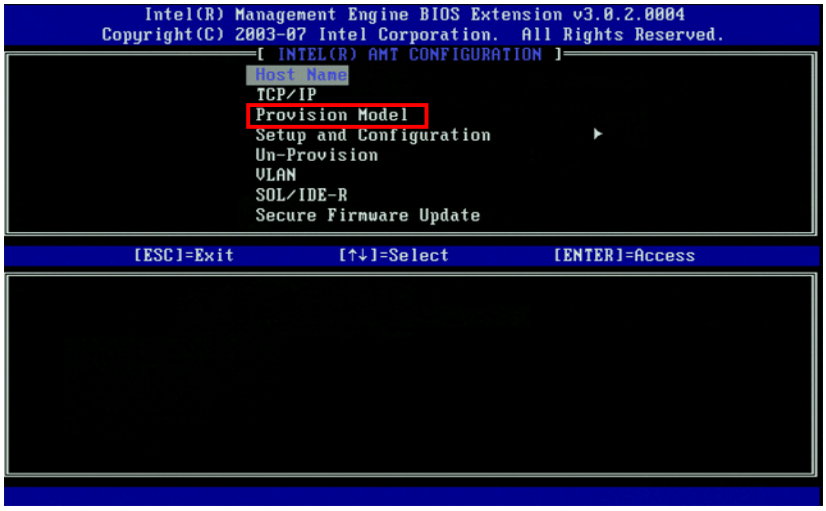
3. Select TCP/IP to get into Network interface, and set it to '***ENABLE***'; into DHCP Mode, and set it to '***ENABLE***' (as ***Remark 2***) ; into Domain name, and set the Intel Management Engine domain name, such as '***amt.intel.com***'.



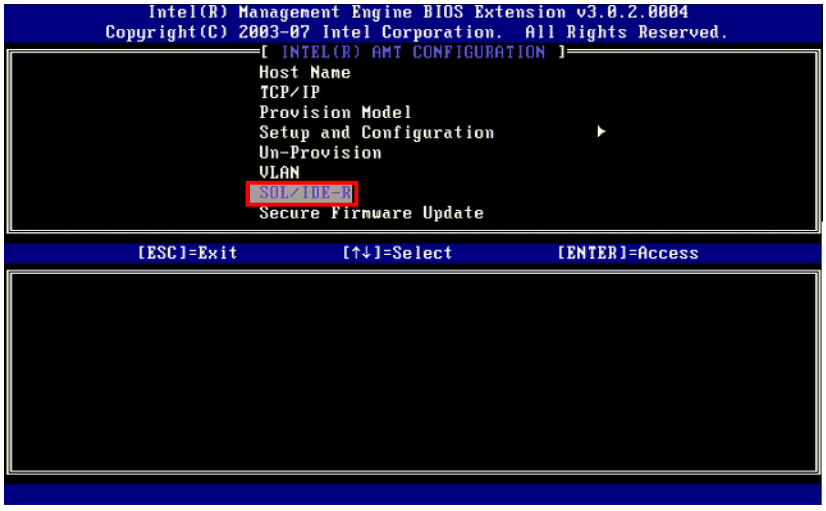
Remark 2 DHCP Mode '***DISABLED***' : if DHCP Mode is disabled, you can make the following settings:

1. IP address
2. Subnet mask
3. Default Gateway address
4. Preferred DNS address
5. Alternate DNS address
6. Domain name

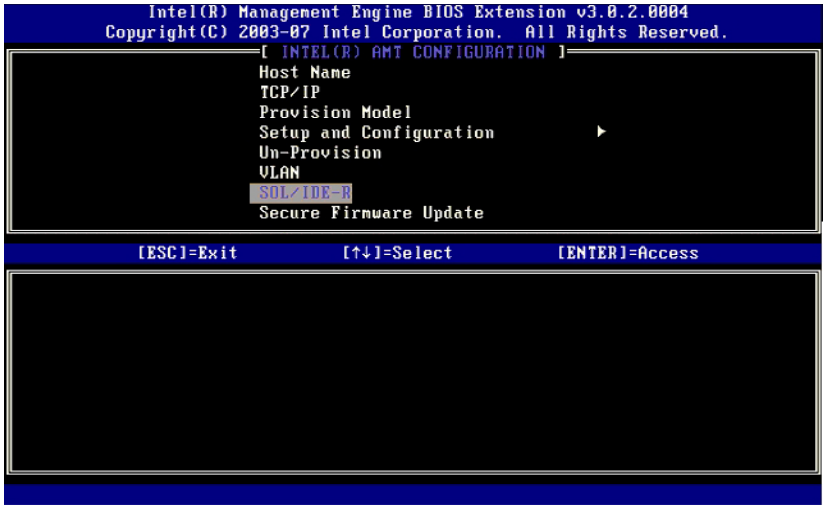
4. Select Provision Model to Change TO INTEL AMT 1.0 (Y/N), and set it to '***N***'; to Change TO Small Business (Y/N), and set it to '***Y***'.



5. Select SOL/IDE-R and set it to '***Y***'. Next, get into Username and Password to set it to '***Enabled***'; into Serial-Over-LAN to set it to '***Enabled***'; and into IDE Redirection to set it to '***Enabled***'.

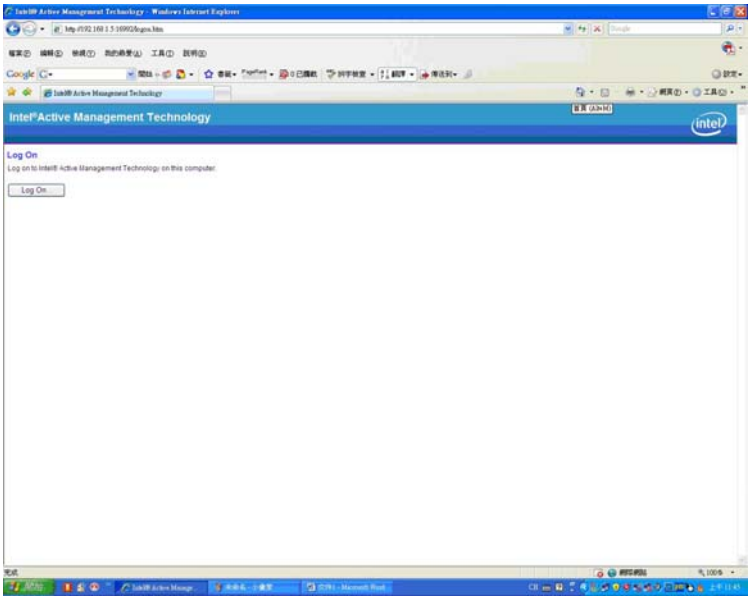


6. Select Secure firmware update, and set it to '***Enabled***'.
7. Exit from MEBx after completing the AMT settings.



C.5 AMT Web Console

1. From a web browser, please type http://(IP ADDRESS):16992, which conncects to AMT Web.
   Example: http://10.1.40.135:16992



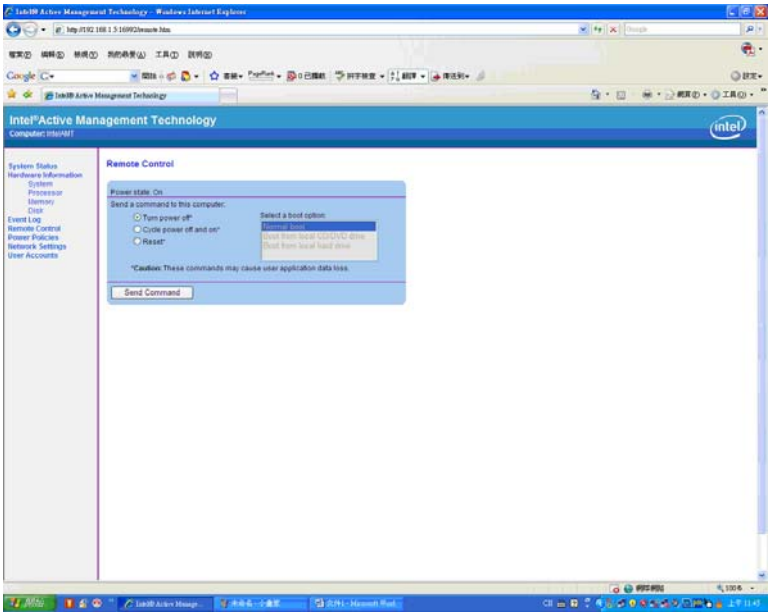
2. To log on, you will be required to type in username and password for access to the Web.

   USER: admin (default value)

   PASS: (MEBx password)

3. Enter the AMT Web.

4. Click Remote Control, and select commands on the right side.



5. When you have finished using the AMT Web console, close the Web browser.

MEMO